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ABSTRACT

This compilation explains the Strategic Reading Project (SRP), a long-term staff development project for schools committed to improving their students' ability to read strategically. Noting that the SRP has been designed for elementary schools, the compilation points out that the project is adaptable to high schools. The Project Team Notebook in the compilation is the guide to project planning, implementation, and evaluation, and consists of four parts: Part 1 presents an overview of SRP, its goals and approach, and its print, audio, and video resources; Part 2 covers the "nuts and bolts" of planning, implementation, and evaluation; the set of planning, implementation, and evaluation "tools"--checklists, surveys, and frameworks--are reproduced in Part 3; and Part 4 consists of six staff development units (on strategic reading and teaching, prior knowledge, inferencing, text structure, word meaning, and metacognition). An extensive reference section includes video and audio resources as well as print. Two appendixes present an annotated bibliography on the staff development processes and strategies used in SRP, and a description of how two or more schools can use a variety of telecommunication technologies to collaborate on SRP "at a distance." The compilation includes an introductory videotape and two audiotapes. (RS)

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Strategic Reading Project

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STRATEGIC READING

PROJECT

North Central
Regional Educational Laboratory

PILOT

IRI/Skylight Publishing
Palatine, Illinois

The Strategic Reading Project Notebook and the accompanying two audio tapes and one video tape are pilot materials for the Rural Schools Action Project and the Urban Schools Action Project of the North Central Regional Educational Laboratory. Use or duplication of materials for purposes or individuals outside of the two projects is expressly prohibited.

Strategic Reading Project

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TABLE OF CONTENTS

Acknowledgements iii

Foreword vii

Introduction ix

Project Overview x

Part 1: What is the Strategic Reading Project? 1

Goals and Approach 3
Strategic Reading and Teaching 3
Evolutionary Staff Development 4
Similarities Between the Evolutionary and the Strategic Approaches 5
Project Leadership 6
Units and Materials 7
References 12

Part 2: Conducting the Strategic Reading Project in Your School 1

Introduction 3
Getting Started 5
Forming a Project Team 5
Deciding Who Will Participate 6
Assessing Reading Instruction and Staff Development 7
Identifying Resources 9
Informing Parents and Community Members 12
Considering Strategic Reading Project Options 12

Planning Your Strategic Reading Project 15
The Planning Process 15
The Year and Unit Planning Frameworks 16
Long-Range Planning 27

Monitoring and Evaluating Your Strategic Reading Project 29
Project Assessment Processes: Monitoring and Evaluation 29
Six Project Assessment Strategies 31

Part 3: Tool Kit 1

Getting Started Checklist 3
Reading and Staff Development
  Beginning-of-Year Survey (First Year) 8
Reading and Staff Development
  Beginning-of-Year Survey (Year 2 and Later Years) 11
Reading and Staff Development End-of-Year Survey 14
Year Planning Framework 18
Unit Planning Framework 22
Long-Range Planning Module 25
SRP Activity Assessment Form 30
Lesson and Lesson Plan Checklist 31
Metacognitive Interview Form for Younger Students 33
Metacognitive Interview Form for Older Students 34

Part 4: Strategic Reading and Teaching Units 1

Unit 1: Strategic Reading and Teaching: An Introduction 3
  Unit Overview 5
  Essay 9
  Annotated Bibliography 36
  Readings

Unit 2: Prior Knowledge 1
  Unit Overview 3
  Essay 6
  Annotated Bibliography 27
  Readings

Unit 3: Inferencing 1
  Unit Overview 3
  Essay 6
  Annotated Bibliograpy 26
  Readings

Unit 4: Text Structure 1
  Unit Overview
  Essay
  Annotated Bibliography
  Readings

Unit 5: Word Meaning 1
  Unit Overview 3
  Essay 6
  Annotated Bibliography 41
  Readings

Unit 6: Metacognition 1
Essay 2

Audio Tapes

Glossary*

Appendices

Appendix 1: Evolutionary Staff Development: An Annotated Bibliography
Appendix 2: Technologies for Staff Development

•*Forthcoming*

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FOREWORD

The Strategic Reading Project grew out of the Rural Wisconsin Reading Project, which took place in seventeen rural districts in west central Wisconsin between 1987 and 1990. The project was a collaborative effort among the North Central Regional Educational Laboratory, the Wisconsin Department of Public Instruction, the Wisconsin Educational Communications Board, and the districts. The participation of the North Central Regional Educational Laboratory was a response to the Rural Education Initiative of the U.S. Department of Education. The initiative mandated Regional Educational Laboratories to develop and identify promising educational practices for rural schools and stressed the use of technologies in those practices. The participation of the Wisconsin Department of Public Instruction and the Wisconsin Educational Communication Board was the logical next step in the ongoing collaboration between the agencies to support statewide reading reform.

An extensive evaluation of the Rural Wisconsin Reading Project showed that the project's approach to staff development on strategic reading and teaching made a positive difference for the students, staff, and schools in the seventeen districts. The Program Effectiveness Panel of the U.S. Department of Education, after considering the evaluation findings, approved the project for dissemination, under the name of "Rural Schools Reading Project," through the Department's National Diffusion Network. The Strategic Reading Project materials were developed to enable other schools and districts to plan, implement, and evaluate similar projects, ones that are tailored to their priorities and conditions.

The Strategic Reading Project materials are the result of the effort and expertise of countless educators and education agencies. In particular, we wish to thank the seventeen districts that participated in the Rural Wisconsin Reading Project; the project team from the Wisconsin Department of Public Instruction, the Wisconsin Educational Communications Board, and Cooperative Educational Service Agency 4; and the evaluation team.

The 17 Districts

Abbotsford
Alma Center-Merrillan
Athens
Bruce-Exeland
Cornell
Edgar
Eleva-Strum
Fall Creek
Granton
Greenwood
Independence
Lake Holcombe
Melrose-Mindoro
New Auburn
Spencer
Stratford
Weyerhaeuser

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Jeri Nowakowski, Northern Illinois University

INTRODUCTION

The Strategic Reading Project (SRP) is a long-term staff development project for schools committed to improving their students' abilities to read strategically. The "P" in SRP stands for "Project" and not for "Program" for an important reason: SRP is not a fixed set of procedures or steps for your school to follow. Rather, in SRP, your staff and your school are learners who continually make decisions about their learning processes as they progress toward the goals of both their school and those of the project. The foundation of the Strategic Reading Project is consistent with the theoretical paradigm currently being promoted in the field of cognitive science, such as the information processing and constructivistic approach. The theoretical base, on which SRP is formulated, is sound; however the empirical data is not readily available. This is due to the trend that valid empirical research almost always lags behind the theoretical concepts or ideas. Therefore, many dimensions of SRP may be theoretically sound, but not empirically proven at present.

SRP has been designed for elementary schools but can be adapted to high schools. The SRP materials — the Project Team Notebook, the Strategic Reading and Teaching audio tapes, and the video tape, "Introducing the Strategic Reading Project"— are the basics for carrying out SRP in your school. Although reading and the teaching of reading has been used as the focus of SRP's staff development project, the scope of this project is not limited to this particular discipline only. The staff development process is general in nature, and, therefore, can be used for other subject areas, such as science, history, mathematics, and so forth. SRP is flexible so that you can adapt the project to your priorities and your school and take advantage of new opportunities as they come along.

The key to SRP is the Project Team that is primarily responsible for conducting the project. The Strategic Reading Project Notebook is the guide to project planning, implementation, and evaluation, and consists of four parts. The first is an overview of SRP, its goals and approach, and its print, audio, and video resources. Part 2 covers the nuts and bolts of planning, implementation, and evaluation. The set of planning, implementation, and evaluation "tools" — checklists, surveys, and frameworks — introduced in Part 2 are reproduced in Part 3 so that your school can photocopy them. Part 4 consists of six staff development units on strategic reading and teaching.

An extensive reference section includes video and audio resources as well as print. There are two appendices. The first consists of an annotated bibliography on the staff development processes and strategies used in SRP. The second describes how two or more schools can use a variety of telecommunication technologies to collaborate on SRP "at a distance."

PROJECT OVERVIEW

What It Is

The Strategic Reading Project (SRP) is a long-term staff development project based on current research. This project is designed for schools needing a structured staff development plan that focuses on reading.

The Strategic Reading Project views staff as lifelong learners who recognize the instructional benefits of being constantly exposed to new learning and, therefore, take the responsibility for:

- Establishing learning goals for themselves
- Making decisions about their learning processes
- Implementing a staff development plan relevant to their students' and school's needs

SRP can be used by local schools or school districts. The participants implement, carry out, and evaluate the type of staff development plan that best meets the needs of their teachers, students, and school. The project is designed to help teachers help students become more efficient readers.

The Strategic Reading Project Approach includes four essential principles: Students can become more strategic learners if:

- Teachers are knowledgeable about strategic instruction
- Teachers know how to teach specific strategies (metacognition, prior knowledge, and inferencing)
- Teachers teach students how to become strategic readers (through modeling, coaching, providing examples, and reflecting techniques)
- Teachers are engaged in ongoing staff development activities

What It Is Not

The Strategic Reading Project is not a packaged program.

- It does not come with a prescribed set of instructional materials
- It does not require specific texts, workbooks, or teacher manuals
- It does not restrict the creativity nor the instuctional autonomy of the teacher
- it does not conflict with the content or interfere with any subject taught, or material being used, by the school

How to Get Started

SRP staff development uses a collaborative team approach. Participants learn together and each has a significant role in planning, conducting, and evaluating the project. In general, a local project team will consist of your principal, a reading specialist (if available), and teachers.

If you are a member of the PROJECT TEAM, you will:

- Plan for and implement staff develpment activities for your teachers and parents
- Help determine the staff development needs of your school and staff members
- Guide the staff through the staff development activities
- Monitor and assess the project

If you are a PRINCIPAL, you will:

- serve as administrative leader: setting the tone for the staff development project, facilitating staff involvement, planning for implementation
- identify staff who will participate in the project
- ensure that targeted objectives are being accomplished
- monitor and assess the project's development and progress

If you are the READING SPECIALIST, you will:

- serve as liaison between the principal, the Project Team, and any external resources
- serve as resource person for the Project Team, providing information on current research and practices
- guide, instruct, model, and coach staff on specific reading strategies
- help monitor implementation and evaluation activities

If you are the TEACHER, you will:

- take responsibility for ensuring that SRP addresses the needs of the staff
- project future staff development needs, using feedback from staff on current practices
- monitor and provide feedback to the team with respect to classroom implementation issues
- serve as a liaison between the entire staff and the Project Team
- help evaluate ongoing staff development activities

Why the Strategic Reading Project?

Research has indicated that effective and ongoing staff development is one of the key elements to effective teaching.

The Strategic Reading Project focuses on a staff development plan that emphasizes the tenet that it is essential that teachers receive training in strategic teaching in order to help students become strategic readers and learners. In implementing the Strategic Reading Project, your staff will:

- realize that reading is an interactive process among the reader, the text, and the context
- recognize the importance of long-term staff development as an essential component in the training of teachers of strategic reading
- have the experience of being decision makers in regard to the school's mission and the best way to accomplish it

1 PART

What is the Strategic Reading Project?

GOALS AND APPROACH

The Strategic Reading Project shares goals with many reading projects. The two SRP goals are:

1. to improve reading instruction in all the school's classrooms through sustained staff development
2. to improve the reading abilities of all students in a school through improved reading instruction

What sets SRP apart from other reading projects is that SRP takes a *strategic* approach to reading and teaching reading and, to borrow Robert Stake's term (1987), an *evolutionary* approach to staff development.

Strategic Reading and Teaching

Current research on reading has resulted in a "new definition" of reading. According to the new definition, reading is constructing, rather than finding, meaning. The process of constructing meaning is an interaction of reader, text, and context, during which the reader links information in the text to his/her prior knowledge. It begins before the reader actually engages in sustained reading and continues after sustained reading stops. The new definition views the reader as a strategic learner who planfully uses a repertoire of strategies to construct meaning. The strategies are basic cognitive components of the comprehension process rather than simple step-by-step procedures.

Students can become strategic readers through strategic teaching in which the teacher functions as a mediator as well as an executive and a manager. As a mediator, the teacher explains the strategies, models their use, guides and coaches students' use of the strategies, and gradually transfers responsibility for using them to the students as they become more adept.

There are three central features to the SRP approach to reading and teaching reading:

1. *Strategic Reading*
   SRP focuses on basic comprehension processes, or reading strategies, such as using prior knowledge and inferencing.

2. *Strategic Teaching*
   Students learn what the strategies are, why they are used, and how to use them before, during, and after reading. Teachers support students' use of the strategies to comprehend increasingly complex texts in increasingly varied genres, gradually transferring responsibility for using the strategies to the students.

3. *Thinking about Reading and Reading Instruction*
   A critical component of strategic reading and teaching is being "metacognitive," or reflective, about reading and instruction. Through SRP, students and teachers learn how to plan, monitor, and evaluate their reading and reading instruction.

Evolutionary Staff Development

Research indicates that successful, school-based staff development is an evolutionary approach to the learning process. In SRP staff development, participants gradually rethink their concepts of reading and reading instruction and bring their instructional practices into line with their new concepts. Their new concepts come through learning about strategic reading and teaching and using the new knowledge to examine their instructional practices in their classrooms. Participants change their practice through applying the new knowledge during instruction and examining their applications and those of their colleagues.

SRP staff development is a collaborative learning process in which participants learn together and from each other. Critical aspects of the collaboration are the development of a common language and modeling and coaching reading instruction strategies. Administrator commitment, involvement, and leadership also are critical for the success of SRP. Finally, for SRP to thrive, its goals and processes must be high priorities that are embedded in the organization and culture of the school.

In summary, there are three central features to the SRP approach to staff development:

1. *Evolutionary Process*
   SRP staff development is a gradual process of building a knowledge base on strategic reading and teaching and then transforming the knowledge into new reading instruction expertise.

2. *Collaboration and Administrator Involvement*
   The knowledge- and expertise-building process is a collaborative one, rooted in a shared language, collegiality, and professionalism. School administrators take part in the process as learners and as leaders.

3. *Institutional "Home"*
   For SRP to really work, it cannot be an institutional afterthought or add-on. Rather, it must find a home in the organization and culture of the school.

Similarities Between the Evolutionary and the Strategic Approaches

The evolutionary approach to staff development is, in many respects, very, similar to the strategic approach to reading and teaching reading. Strategic reading instruction builds students' knowledge about reading strategies and supports their efforts to turn the new knowledge into expertise in using the strategies. Evolutionary staff development builds staff knowledge about strategic reading instruction and supports their efforts to turn the new knowledge into expertise in teaching strategically. As a teacher plans, conducts, and assesses strategic reading instruction, so a Project Team plans, conducts, and assesses evolutionary staff development. And like strategic reading instruction, evolutionary staff development "fits into" an environment — the organization and culture of a school and its classrooms.

Connecting the Evolutionary and Strategic Approaches

	Evolutionary Staff Development	*Strategic Reading Instruction*
Learners	Staff	Students
Learning Process	Learn about teaching reading strategically Turn knowledge into expertise	Learn about strategic reading Turn knowledge into expertise
Leaders	Project Team	Teachers
Environment	Fits into the organization and culture of the school and its classrooms	Fits into the organization and culture of the classroom

PROJECT LEADERSHIP

Leadership is essential for making any school-based staff development project a success. It is particularly crucial for SRP because the project is not a step-by-step procedure. Rather, SRP is a flexible process that is planned and adjusted along the way. SRP leadership comes from the Project Team which is primarily responsible for the planning and the adjustments. SRP takes the team approach to project leadership for four reasons:

1. The Team spreads the time and energy demands of leadership among its members.
2. The Team brings together staff with different areas of expertise and focuses their application of the expertise to the project.
3. The Team provides staff with a model of collaboration.
4. The Team reduces threats to project continuity posed by staff turnover.

The Project Team consists of *at least* the individuals with the following positions (or their equivalents): principal, reading specialist, library-media specialist, and teacher. In many cases, this means at least four people, though in some, it means two or three. It is recommended that the Project Team have at least three members if at all possible.

While all Team members are responsible for planning, implementing, and evaluating SRP, each also has another primary responsibility. The principal is the SRP administrator. The reading specialist tailors staff development to teachers' prior knowledge and priorities and is the primary strategy modeler and coach. The library-media specialist has the responsibility for integrating the print and media resources of the library into teachers' strategic reading instruction and students' strategic reading. The teacher's role is to insure that the project reflects instructional and classroom priorities and conditions. (Team membership and roles are discussed in Part 2, p. 5, "Getting Started.")

The importance of the principal's participation in SRP, both as a Project Team member and as a learner in the evolutionary staff development process, cannot be too strongly stressed. Through participation in staff development, the principal demonstrates that SRP and its goals are valued at the school level. Further, participation builds knowledge about strategic reading and teaching that can be applied both as a team member and as a school building administrator. As a Team member, who understands the process of becoming a strategic reading teacher, as well as the nuts and bolts of the project, the principal can understand and respond appropriately to the intellectual and organizational needs of SRP. Further, as a school building administrator, the principal is in a position to apply new knowledge about strategic reading and teaching to other administrative functions, such as staff evaluation and the allocation of instructional resources.

UNITS AND MATERIALS

The core of SRP is a set of six staff development units on strategic reading and teaching:

1. Strategic Reading and Teaching
2. Prior Knowledge
3. Inferencing
4. Text Structure
5. Word Meaning
6. Metacognition

The first and second units form the foundation for the others and are used in sequence. After completing them, the Project Team determines sequence in light of the school's priorities and interests of its staff. The Team also determines unit duration. The Team decides duration when planning and makes adjustments as warranted during implementation. Our experience has been that units last between two and three months. However, units can last substantially longer. For instance, a school might spend a semester or longer on the metacognition unit for any or all of the following reasons:

- Metacognition might be or become during the unit, a reading improvement priority.
- Metacognitive focusing, during instruction, helps students to "get a grip" on other reading strategies.
- Metacognition might become the bridge to reading strategically across content areas and the staff might decide that more time should be spent on building the bridge.

Whatever the reason, the Project Team can collaborate and determine the amount of time to be spent on the units of study.

Each unit follows the path of evolutionary staff development from knowledge building about strategic reading and teaching through building instructional expertise. We break this path down into five phases; to facilitate understanding each phase, a definition and an emphasis statement are provided.

1. Building a Knowledge Base

Definition– Studying information about strategic reading and teaching

Emphasis– Learning from descriptions of research and expertise practice

- Acquiring new knowledge and information is critical in learning any new strategy. However, there often are limitations that cause people to simply bypass or minimize this phase of the staff development process. Among the typical limitations faced by teachers are lack of time to explore and understand new information and ideas, lack of easy access to resources, and few opportunities to talk with "experts" or colleagues about what they are trying to learn. These limitations, among others, often mean that teachers may simply learn techniques without fully understanding the concepts that underlie them. Helping students learn to read strategically, however, is more than a series of techniques. It requires staff to develop new understandings about the reading and teaching processes.

2. *Observing Models and Examples*

Definition– Studying actual examples of strategic reading and teaching

Emphasis– Learning from examining examples in light of expanded knowledge

- Knowledge is important, but alone it is insufficient to support meaningful change in practice. In this phase, participants study actual examples of strategic reading and teaching to see how new knowledge can be translated into instructional strategies. It is important to emphasize that studying examples of how other teachers have implemented the strategic reading approach is intended to stimulate the staff's thinking about new strategies that can be used with students, as well as current practices that need to be reevaluated. *The purpose is **not** to present models of what all teachers should do, in all classrooms, with all students, all of the time.* Teachers, students, and school/classroom learning environments are different, and *no one approach is effective, or even appropriate in all cases.* So, the point is not to identify some techniques that can be mimicked or adopted "as is." Instead, the key issues to consider are: (a) how the strategic reading concepts and research you learned about in the first phase are reflected in the examples, (b) why these teachers chose the approaches they did, (c) what competencies the students in these examples needed to participate effectively in the process, and (d) what insights you developed from these examples that can be applied to your classroom and students.

3. *Reflecting on Your Practice*

Definition– Analyzing reading instruction in your classroom and planning changes in it

Emphases – a) Evaluating your instructional methods on the basis of new knowledge and new models of reading instruction and b) "matching" instructional changes to your students

- This phase and the next, "Changing Practice," tend to be the most difficult. In this phase, participants are challenged to critically reflect on what they have been doing and why, to assess the degree to which their current practice is resulting in students who are strategic readers and to evaluate how well their rationale for their current practice is supported by the new knowledge they have gained. In this phase, several considerations are critically important. First, most people are not accustomed to, or comfortable with, the process of self-criticism or analysis, especially among their peers. It is important, therefore, to understand that the point is NOT a matter of strategic reading being more effective than your current practices. Instead, the basic idea is that professional expertise is never static, but is a dynamic and continuing process of gaining new knowledge (from research or practice) and using that knowledge to improve what we do. Second, for staff to analyze their practice successfully, an atmosphere of trust and mutual involvement in a process of exploration is essential. Finally, the goal of this phase is for participants to begin looking at their roles and responsibilities as teachers differently — to find creative ways to use new instructional strategies with their students, rather than simply introducing new strategies unilaterally and hoping that the students "catch on."

4. *Changing Your Practice*

Definition– Putting your plans for instructional changes into action

Emphasis – Gradually reshaping reading instruction through trying out new methods and receiving feedback through coaching

- In this phase, participants use the new knowledge, applied examples, and an analysis of their current practice as the foundation for planning the specific changes they want to make in their classrooms. Critical questions include:

    What instruction and activities are needed for my students to become strategic readers?

    How well are these reflected in my current practice?

    What current practices may be hindering students from becoming strategic readers?

    What current practices need to be eliminated?

    What new ones should be put into practice?

    How can I put them into practice?

    How will I know how well I'm doing?

It is helpful to bring students (and even parents) into the process. Ideally, students, as well as their teachers, view changes in their reading instruction as an "adventure" taken together that requires mutual support and involvement. Effective strategies for making instructional changes include a plan for obtaining feedback from others who are "expert" practitioners. While this may be threatening or uncomfortable for many, it is an essential element of successful change.

5. *Gaining Expertise*

Definition– Continuing to become more instructionally adept and becoming an instructional resource for others

Emphases – a) Refining new instructional methods through practice and reflection and b) modeling the methods for others and coaching them in their use

- The final phase of the process involves internalizing this approach as the new "norm" for your reading instruction (as opposed to an experiment) and becoming an instructional resource for your colleagues. Both aspects involve continual reflection on what you are doing, why you are doing it, and how you can do it better. Self-analysis, or having others observe and comment on your teaching should not be a point-in-time activity, but a regular part of the professional process of teaching.

There are three things to note about the five phases of SRP evolutionary staff development.

1. *The phases are not "sharp-edged."*
   They shade into one another and differences between them are really matters of emphasis. For instance, you can be observing models and reflecting on practice at the same time. You are in the observing-models phase if you are spending more time and focusing more attention on the models than on your own practice. As you come to spend more time and focus more attention on your own practice, you move into the reflecting-on-practice phase.

2. *The phases are not "completed."*
   Again, the phases are differences in emphasis, and a phase that is not emphasized at one time can be emphasized at a later time. For example, you do not stop building your knowledge base on Monday because you are ready to move on to observing examples on Tuesday. Rather, you de-emphasize knowledge building and emphasize observing examples. While you are reflecting on practice, changing practice, or gaining expertise, you will want to reemphasize building knowledge in response to questions, issues, and interests that have come up.

3. *The phases mix individual and collaborative activities.*
   You can read a research article on prior knowledge or listen to an audio tape of instructional examples on prior knowledge and thereby build your own knowledge. However, you can also discuss the article with another person or analyze the examples in a small group. Such collaborative activities add substantially to the learning you do on your own. Similarly, when you model an instructional strategy for another or a group, or coach someone who is trying out the strategy, you are *collaborating.* Collaboration enhances the learning individuals do in each of the phases.

Six strategic reading and teaching units can be found in Part 4 of this Notebook. Each unit consists of the following components:

1. *Suggestions for Staff Development Activities*
   Ideas for each of the five phases of evolutionary staff development are included.

2. *Essay*
   The Essay provides a conceptual framework or map for the unit, highlighting key principles and ideas drawn from the unit's base in research and expert practice.

3. *Annotated Bibliography*
   This section describes the readings contained in the unit.

4. *Readings*
   The readings explore the unit's research foundation and expert classroom practices based on the research.

5. *Audiotape*
   An audiotape illustrates how the strategic approach or the specific strategy looks in the classroom.

SRP materials include a videotape, "Introducing the Strategic Reading Project." If you have not viewed it yet, we suggest that you do so before moving on to Part 2. A set of five videotapes, "The Story of the Rural Wisconsin Reading Project," is also available from NCREL. The tapes tell the story of the three-year evolutionary staff development project on strategic reading and teaching in seventeen rural Wisconsin districts, upon which SRP is based. Three of the tapes—"The Story of the Rural Wisconsin Reading Project," "Learning Together," and "Leading Change"—provide a look at the project as a whole, the evolutionary staff development process, and the role of the Project Team. The other two tapes—"Learning at a Distance" and "Becoming Strategic"—describe two SRP options. The "Learning at a Distance" tape shows how distance technologies such as audio, video, and computer conferencing can be used to link schools in a multischool version of SRP. The "Becoming Strategic" tape focuses on how an outside staff development expert can contribute to SRP. The tapes are especially useful for small, rural schools starting SRP and schools that will be collaborating with other schools or outside experts on SRP.

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2 PART

Conducting the Strategic Reading Project in Your School

INTRODUCTION

As we have stressed, SRP is not an "out-of-the-box" program. It is a project that is planned, conducted, and evaluated. And, like the phases of evolutionary staff development, the processes of conducting and evaluating SRP are not "sharp-edged." Planning does not end when SRP starts and evaluating does not wait until SRP is completed. Rather, initial plans are guidelines for conducting SRP and form a framework for evaluating SRP in progress. The ongoing evaluation provides information for adjusting plans along the way. In short, planning and evaluating SRP are also parts of conducting SRP.

The purpose of this part of the Notebook is two-fold: to describe how SRP is conducted and to provide frameworks for your Project Team to use in carrying it out. The "Getting Started" section focuses on SRP start-up. The "Planning" section discusses the planning process and provides guidelines for developing year plans and unit plans. The "Monitoring and Evaluating" section describes what to look for and how to look for it when assessing SRP itself and SRP's impact on reading instruction, the reading program as a whole, and students' reading abilities.

GETTING STARTED

Starting the Strategic Reading Project (SRP) involves making decisions about the *who, what, why, where,* and *when* of implementing SRP in your school. This decision making takes place as you follow the six start-up steps found in the "Getting Started Checklist" (see pp. 3-7 in the Tool Kit). These steps are:

1. Forming a Project Team
2. Deciding who will participate in SRP
3. Assessing reading instruction and staff development
4. Identifying resources
5. Informing parents and community members
6. Considering SRP options

The order of the six steps above is *suggested.* In your school, a different order may be required. You might want to inform parents and community members first, or assess reading instruction and staff development before you form the Project Team or decide who participates. You may perfer to work on more than one step at a time. For instance, during an afternoon staff meeting, you might form the Project Team and choose the participants. At a school board meeting that night, you could begin informing parents and community members about the project. The climate of your school will determine the priority of these six steps, which are described in detail below.

Forming a Project Team

As noted, an effective Project Team is the key to SRP success. The Team has primary responsibility for planning, conducting, and evaluating SRP. There are four Team slots or roles: *school principal, reading specialist, library-media specialist,* and *teacher.* The principal is the program administrator. The reading specialist tailors staff development to teachers' prior knowledge and priorities and is the primary strategy modeler and coach. The library-media specialist primarily works with teachers to find instructional resources to teach the reading strategies. The teacher's (or teachers') primary responsibility is to insure that SRP reflects and incorporates the instructional priorities.

The number of people filling the four Team slots will depend on how your school is staffed. In small schools, a person may have more than one role. In large schools, there may be more than one person performing a specific role. Deciding who should be on your Team will depend upon your school's staffing pattern and staff members' interest in the project and their expertise in the Team roles. New members can be added to the Team as the staff develops new interests and expertise through SRP.

Deciding Who Will Participate

SRP is a school-based project in which the entire staff participates *sooner or later.* You have two options:

- All teachers (and administrators and other staff, if your school has them) participate from the outset
- Some members of the staff participate from the beginning and the others come in over the course of the project

There are benefits and costs to each option.

When the entire staff participates from the beginning, students are always in a class where reading and reading instruction are strategic. As they move from a reading to a social studies class or even from third to fourth grade, for instance, they aren't confused by different models of reading and reading instruction.

However, when all staff is involved at the onset, there is a possibility that some of the participants are not really "ready" to be in the project. For instance, a teacher might not see a reason to change the way s/he teaches reading or might be working very hard on becoming a better science or mathematics teacher. In departmentalized grades or schools, teachers who are not in the language arts might not regard reading as part of their curriculum. In some cases, teachers might not see staff development as a viable path to instructional improvement because of previous experience.

Teachers who are not "ready" for SRP need to be convinced that SRP will be valuable to them. This can happen either through participation from the beginning or through observation, then participation. The second choice means that some staff join the project once it is under way.

When some staff participate from the beginning and others join along the way, the "readiness" issue is addressed, but students will move between SRP and non-SRP classrooms. This quickly becomes a problem for the students, who are receiving mixed messages about reading and reading instruction. Further, when staff join the project once it is under way, they are behind their colleagues who participated from the beginning. The difference in knowledge about strategic reading and strategic teaching must be accommodated in staff development activities.

In summary, when all staff participate in SRP from the beginning, students always get the same message about strategic reading, but the participation of some staff is likely to be marginal. When some of the staff participate from the beginning and others join in over a period of time, staff participation will most likely be more whole-hearted, but students will get different messages about reading.

Which option should your school choose? There is no "right answer." You and your staff are in the best position to judge which is best because you know yourselves, your students, and your school. Below are four factors to consider when determining which option best suits your school.

1. It is likely that requiring the participation of a teacher dead set against SRP will be counterproductive for the teacher and for the project.

2. All staff should be in the project by the beginning of the third year. Otherwise, it is unfair to your students and SRP becomes too unwieldy.

3. Consider "combining" the two options. A teacher who is not ready to participate fully may be ready to participate in some SRP activities. For instance, the teacher might be ready to take part in the first two staff development phases, *Building a Knowledge Base* and *Observing Models and Examples*, but not ready to take part in the other three.
4. Present the options (including the "combined" option, if you think it makes sense for your school) to your staff and include them in the decision making.

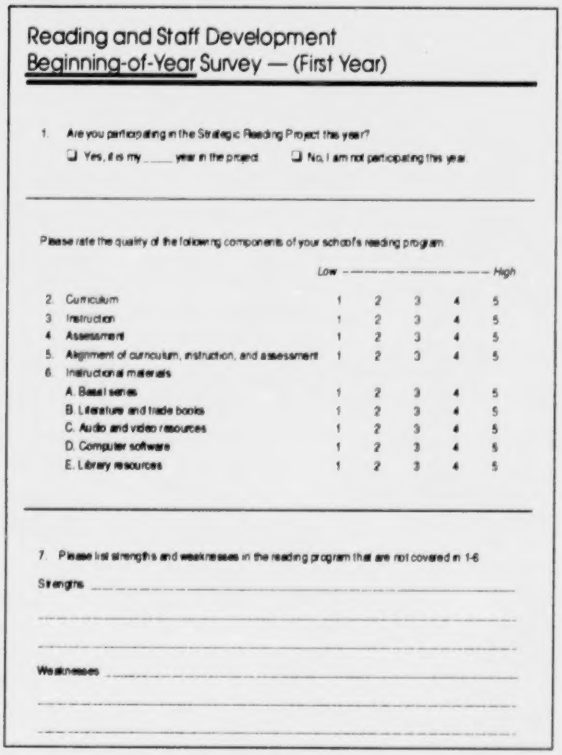
Assessing Reading Instruction and Staff Development

Just as strategic reading and teaching build on students' prior knowledge and experience, SRP's evolutionary staff development builds on the staff's prior knowledge and experience. It starts from your staff's knowledge of and experience with reading instruction and staff development. As you start SRP, it is vital to assess your school's programs in these two areas to enable the Project Team to tailor SRP to your school's reading and staff development strengths. Additionally, the Team can focus on the parts of those programs where improvement is most needed.

This assessment is the first of a series of occasions during the project when you will take stock of your reading and staff development programs in their current state and in light of SRP goals. A staff survey (See Figure 1) for this purpose can be found in the Tool Kit on pages 8-10. It asks staff to rate the school's reading and staff development programs and to assess their own experiences with the content and processes behind SRP. We suggest that each staff member complete the survey. To analyze their responses, figure frequency counts or means for the Likert Scale items (ratings of 1-5) and figure frequency counts of similar responses for the open-ended items (item numbers 7 and 31). The survey can be supplemented by the following four strategies:

1. *Reading and Staff Development*
   - Have individual staff members list the five strengths and weaknesses of your school's reading and staff development programs. The lists can be combined, frequency counts figured, and then circulated for comments. Or instead of strengths and weaknesses, improvement goals for the reading and staff development programs can be listed, combined, and circulated.
2. *Reading*
   - Focus on student performance.
   - Analyze student test results for strengths and weaknesses. (Be sure that the test really measures what you think ought to be measured about reading.)
   - Examine student performance in the classroom. For instance, teachers can select student work according to a criterion, such as typical work on three key cross-grade objectives, and then analyze the work in light of the objectives.
   - Interview a small, random sample of the better and the poorer readers in a number of grades about the reading process. The interview might only consist of one

FIGURE 1



Reading and Staff Development
Beginning-of-Year Survey — (First Year)

1. Are you participating in the Strategic Reading Project this year?

☐ Yes, it is my ____ year in the project. ☐ No, I am not participating this year.

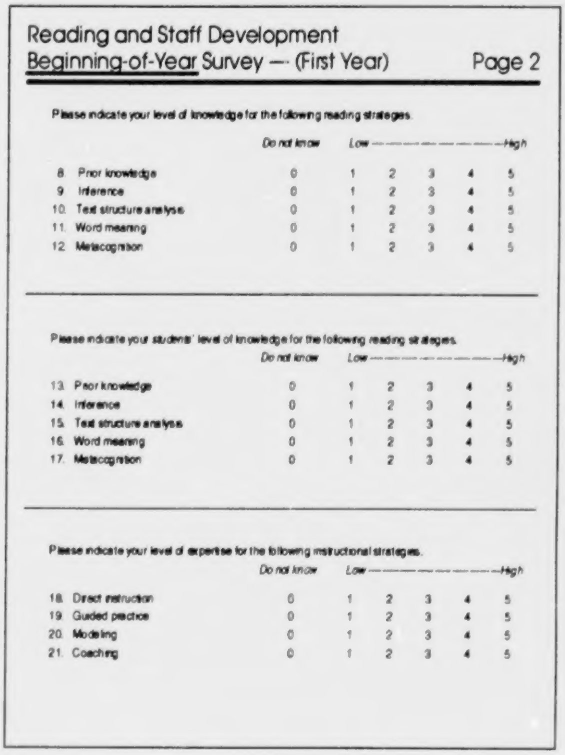
Please rate the quality of the following components of your school's reading program.

	Low				High
2. Curriculum	1	2	3	4	5
3. Instruction	1	2	3	4	5
4. Assessment	1	2	3	4	5
5. Alignment of curriculum, instruction, and assessment	1	2	3	4	5
6. Instructional materials					
A. Basal series	1	2	3	4	5
B. Literature and trade books	1	2	3	4	5
C. Audio and video resources	1	2	3	4	5
D. Computer software	1	2	3	4	5
E. Library resources	1	2	3	4	5

7. Please list strengths and weaknesses in the reading program that are not covered in 1-6

Strengths ______________________________

Weaknesses ______________________________



Reading and Staff Development
Beginning-of-Year Survey — (First Year) Page 2

Please indicate your level of knowledge for the following reading strategies.

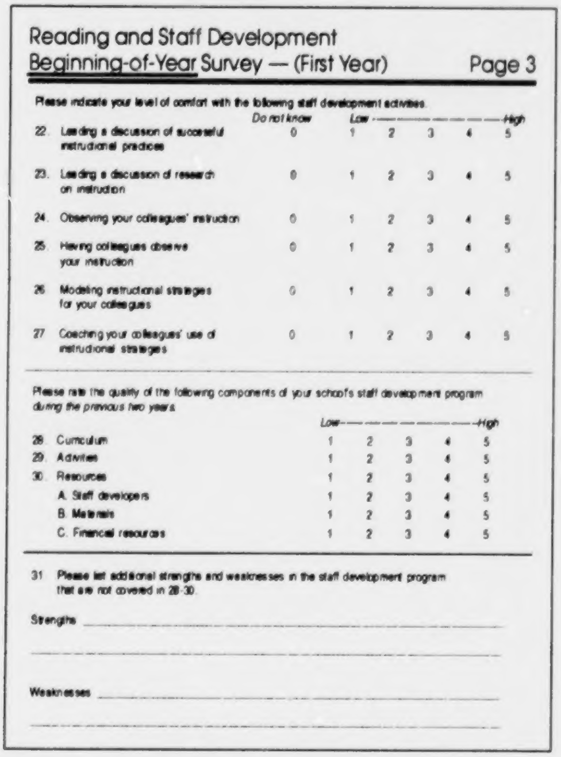
	Do not know	Low				High
8. Prior knowledge	0	1	2	3	4	5
9. Inference	0	1	2	3	4	5
10. Text structure analysis	0	1	2	3	4	5
11. Word meaning	0	1	2	3	4	5
12. Metacognition	0	1	2	3	4	5

Please indicate your *students'* level of knowledge for the following reading strategies.

	Do not know	Low				High
13. Prior knowledge	0	1	2	3	4	5
14. Inference	0	1	2	3	4	5
15. Text structure analysis	0	1	2	3	4	5
16. Word meaning	0	1	2	3	4	5
17. Metacognition	0	1	2	3	4	5

Please indicate your level of expertise for the following instructional strategies.

	Do not know	Low				High
18. Direct instruction	0	1	2	3	4	5
19. Guided practice	0	1	2	3	4	5
20. Modeling	0	1	2	3	4	5
21. Coaching	0	1	2	3	4	5



Reading and Staff Development
Beginning-of-Year Survey — (First Year) Page 3

Please indicate your level of comfort with the following staff development activities.

	Do not know	Low				High
22. Leading a discussion of successful instructional practices	0	1	2	3	4	5
23. Leading a discussion of research on instruction	0	1	2	3	4	5
24. Observing your colleagues' instruction	0	1	2	3	4	5
25. Having colleagues observe your instruction	0	1	2	3	4	5
26. Modeling instructional strategies for your colleagues	0	1	2	3	4	5
27. Coaching your colleagues' use of instructional strategies	0	1	2	3	4	5

Please rate the quality of the following components of your school's staff development program *during the previous two years.*

	Low				High
28. Curriculum	1	2	3	4	5
29. Activities	1	2	3	4	5
30. Resources	1	2	3	4	5
A. Staff developers	1	2	3	4	5
B. Materials	1	2	3	4	5
C. Financial resources	1	2	3	4	5

31. Please list additional strengths and weaknesses in the staff development program that are not covered in 28-30.

Strengths ______________________________

Weaknesses ______________________________

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question, "What is good reading?" The responses can be compared within and across grades to see how well your reading program is helping students develop their concepts of reading.

3. *Staff Development*

- Focus on the instructional changes that came about through previous staff development.
- Have staff construct a chart of previous staff development activities and resulting changes.
- Analyze the chart in terms of the activities that resulted in the most substantial and most effective instructional changes.
- Analyze the activities that rated highest; determine the common characteristics of the most effective ones.

4. *Reading and Staff Development*

Consider bringing in an outside expert or experts to assist with or conduct the assessment, if the cost does not substantially reduce your school's SRP financial resources.

Identifying Resources

The Project Notebook and audio- and videotapes are the only materials you will need for planning, conducting, and evaluating SRP in your school. However, you will need to make additional resources available. Staff will need space in which to meet and work. They will need time both to plan and implement SRP activities. Equipment must be supplied to play the audio- and videotapes. You may want to obtain additional books or tapes to supplement the SRP materials. Of course, your school's Project Team and staff are the most important SRP resources. These additional SRP needs and resources are described in more detail below.

Facilities

Ideally, a room will be made available where staff can use the SRP materials individually and in groups without being disturbed and without disturbing others. Again ideally, staff has access to this room before, during, and after the school day, and on weekends. A room where all participants can gather to view a videotape or discuss readings is also necessary. While these kinds of rooms are not often readily available, finding or creating one as close to the ideal as possible will result in more efficient use of your staff's valuable time.

Time

SRP is, in an important sense, an around-the-clock project. It can occupy as much time as staff is willing to spend, in school and out, reflecting on and changing their reading instruction practices. Experience suggests that the Project Team should aim to spend approximately four to five hours a week and participating staff approximately three hours a week, averaged over the school year. The staff's time is divided among:

- Working alone
- Working in different-sized groups
- Observing, modeling, and coaching in each other's classrooms

The Project Team will spend additional time in planning and preparation.

Equipment

To play the SRP audio- and videotapes, you will need a television, a video cassette recorder, and an audio cassette recorder. A copier will be needed for reproducing parts of the Notebook, such as suggested activities for staff. No other equipment is required.

You may, however, want to consider using a video camera. You can use it to film examples of reading instruction in your classrooms. The tapes can be used as models of good reading instruction and analyzed as part of the coaching process. They provide some flexibility in both the modeling and coaching processes. Teachers can see instruction without visiting another classroom, and they can watch a tape when and where it fits into their schedules.

Materials

Only the SRP Notebook and audio- and videotapes are needed, but a wide range of materials may be used as supplements. For example, the following materials were used by the Wisconsin schools in which SRP was developed:

Becoming a Nation of Readers: The Report of the Commission on Reading (Anderson, et al., 1985), a seminal and very readable synthesis of the research on which the SRP approach to reading and reading instruction is based

Teaching Reading Comprehension (Wisconsin Educational Communications Board, 1985), a series of 14 half-hour video programs and an 80-page viewer's guide on strategic reading and reading instruction

Storylords (Wisconsin Educational Communications Board, 1986), a video, computer, and print instructional series on strategic reading for primary students; also provides a set of instructional models for teachers

A Guide to Curriculum Planning in Reading (Wisconsin Department of Public Instruction, 1986), Wisconsin's state curriculum guidelines on strategic reading and teaching

Strategic Learning in the Content Areas (Wisconsin Department of Public Instruction, 1989), a second set of Wisconsin curriculum guidelines that extends strategic reading and reading instruction to reading and learning across content areas

The materials used in the Wisconsin schools are by no means your only options. There is a wealth of very useful books, journals, and audio- and videotapes on strategic reading and teaching available from sources such as:

- The ERIC Clearinghouses on Reading and Communications Skills and on Languages and Linguistics which store and distribute, at a reasonable cost, thousands of documents, including articles, curriculum guides, and assessment instruments

- The Center for the Study of Reading at the University of Illinois, Urbana-Champaign, one of the federal basic education research centers

You might consider a school or an individual membership in the International Reading Association and its many state affiliates or the National Council of Teachers of English. Members save on their print, audio, and video materials and on conference registrations. Whether you decide to join either professional association or to attend their conferences, it is always worthwhile to get their conference programs. Most conference presenters are more than happy to send copies of their presentations in response to a postcard.

Some materials are free, except for the cost of the request — a postcard or phone call — and others can be borrowed. Contact state departments of education, intermediate service agencies, college and university libraries, central offices in large districts, and nearby schools and districts.

Sometimes we focus so intensely on finding materials we forget that we, too, are sources. During the course of SRP, you and your colleagues will be developing your own materials. For instance, lesson plans, handouts, transparencies, and videotapes are valuable instructional materials to be collected and shared.

Funds

The only necessary costs of SRP are for the Notebook, audio- and videotapes, and copying of materials. However, if your school's budget will stretch, a project fund can be very useful. For instance, the fund can be used to:

- Hire a "floating" substitute teacher, thus, making scheduling observations, modeling, and coaching easier
- Build a project library that will house some of the materials described above
- Pay for visits to observe and discuss reading instruction in nearby schools
- Bring in or call experts in reading or staff development
- Attend conferences and workshops.

Informing Parents and Community Members

To be most effective, SRP needs to be a *public* project. Inform parents and community members at the start of SRP to gain their support for, and involvement in, the project. This will translate into a stronger project inside your school and one that extends into the community. The goal is for students' reading and reading instruction at home, at the library, and elsewhere in the community to be as strategic as at school.

PART 2

Considering Strategic Reading Project Options

SRP stresses collaboration among Project Team members and teachers in your school. The collaboration can extend *across schools* and be a *multischool staff development project.* SRP was developed in 17 rural districts spread across 5 counties in Wisconsin. The schools worked together, connected by three telecommunications technologies — audioconferencing, videoconferencing, and computer conferencing. A staff development team supported their efforts by coordinating and conducting activities across the districts and by helping Project Teams plan and conduct the project and build their staff development capacities.

As you plan your school's Strategic Reading Project, you will want to consider whether your school should "go it alone" or work with partners. This section describes three collaborative options for consideration by your school:

1. Collaborating with other schools
2. Collaborating with outside experts
3. Collaborating through telecommunications

You can combine any two or all three of the options in SRP.

Collaborating with other schools

There are at least two reasons why collaborating with other schools on SRP might be the way for your school to go.

- First, a multischool SRP brings together the schools' human, material, and financial resources. Pooled resources mean shared responsibilities and reduction in the cost of implementing and conducting the project. For instance, two or more reading specialists can work together, splitting or alternating tasks in the staff development units, or two schools might pool their professional development libraries.
- Second, collaborating with other schools reduces professional isolation. In many rural schools a teacher rarely sees or talks with another teacher teaching the same grade or subject. (The staff in many urban and suburban schools may be equally isolated.)

There are additional reasons for collaborating that are "situation-specific."

- If your school already collaborates with another school or schools, SRP can build on the existing collaboration.
- Collaboration among elementary schools that send their students to the same high school increases the alignment of curriculum, instruction, and assessment across the schools.

The number of schools that can collaborate successfully depends on several factors, including the extent of the collaboration, the location of the schools, and the amount of effort the partners can make. At some point, though, the collaboration may become too complex, unwieldy, and diffuse to be really profitable for the partners. SRP in your school may start to suffer because resources for it will be going to the collaboration. If these situations occur, you will want to reevaluate the partnership.

Collaborating with outside experts

Outside experts can bring valuable experience to SRP in your school. These experts might be individual educators or educational agencies such as your intermediate service agency or a nearby college or university. When choosing this option, consider the following:

1. Collaborate with other schools. You can work with any number of experts or teams of experts, depending on the extent of the collaboration, the location of the experts, and the amount of effort the partners can make. However, at some point, the collaboration may become too complex, unwieldy, and diffuse to make it worthwhile.
2. Work together where it makes sense to work together. An hour presentation by an expert may be all you need, or you may decide to bring one on board as a full member of the Project Team. Refer back to the five stages of evolutionary staff development for a good starting point in determining where collaboration makes the most sense.
3. Pay attention to the evolution of the collaboration in light of the evolution of SRP in your school. It is likely that different kinds of expertise and expert involvement will make sense at different times during the project.

Collaborating through telecommunications

For some reason, we all have a tendency to think of telecommunications and other technologies as tools for increasing educational opportunities for *students only*. However, telecommunications (distance learning) technologies work just as well for educators as it does for their students. If your school decides to collaborate with other schools or outside experts on SRP, you also might consider how telecommunications can support and augment that collaboration. This option is sketched briefly here and described fully in Appendix 2.

Distance learning technologies can be divided into noninteractive and interactive technologies. Noninteractive technologies, such as broadcast radio and television and audiocassettes and videocassettes, are one-way communications systems, moving information from a sender to a receiver. Interactive technologies, such as audio, computer, videoconferencing, and the mail, are two-way or multiway communications systems. Every information sender is also a receiver and vice-versa.

There are three primary reasons for using either or both interactive and noninteractive telecommunications systems in an SRP collaboration.

1. All telecommunications systems enable partners to collaborate without being face to face in the same place.

> Partners might simply exchange information, such as useful articles, successful lesson plans, and videotapes of successful lessons, through the mail. Staff in the collaborating schools also might discuss and critique those articles, lesson plans, or lessons during an audio conference (conference call) or over a computer conference on an electronic bulletin board.

2. Many telecommunications systems enable partners to collaborate non-simultaneously.

   For instance, audio and video cassettes can be listened to or watched when convenient. A teacher who is participating in an ongoing discussion of text structure analysis over a computer conference can pick up the discussion and contribute to it before school or before going to bed.

3. Once the equipment is paid for, the result will be a reduction of cost both in money and time.

   At all but the closest distances, moving information, whether in print, audio, or video format, is cheaper than moving people. Also, for the cost of collaborating face to face, telecommunications allows you to work with more distance partners.

Distance learning technologies, individually and in combination, are powerful tools. Like the use of any tool, the use of a distance learning technology is a learned ability. So, too, is distance learning technology *for staff development*. The use of telecommunications in an SRP collaboration should match the abilities of the partners. Otherwise, the process of learning how to use it will diminish the effort that can be devoted to staff development on strategic reading and teaching.

PLANNING YOUR STRATEGIC READING PROJECT

Your Project Team is responsible for planning how SRP will be conducted in your school. The Team maps out each year of the project and the specific Strategic Reading and Teaching Units to be covered. This section discusses how to plan SRP. It explains how to use year and unit frameworks to assist in your Team's planning. At some point, usually during the second or third year of SRP, schools begin to make decisions about SRP's future. A process for making these decisions is included along with a long-range planning framework that can be used to extend SRP.

The Planning Process

The Project has been designed so that an SRP year corresponds to a school year. Ideally, then, your Project Team should develop plans for an SRP year and for its units before the school year begins.[1] Summer planning does present some difficulties, but they are outweighed by a number of benefits. For instance, there are fewer demands on the Team's time, unlike the hectic first two months of the school year. Also, if a plan is ready to go before school begins, the staff can fit SRP activities into their relatively open schedules rather than using a shoehorn to do so later in the school year.

Coordinating SRP planning and your other planning processes

For many schools, it is even better to begin planning SRP the previous spring because of other considerations. For instance, in the spring, schools are often developing curriculum improvement plans, staff development plans, or educational technology plans. Many states require that plans be submitted to the state education agency in late spring or early summer. Spring is also a time when schools are making decisions that are connected to SRP: adopting textbooks, purchasing instructional materials, arranging student assessments, and so forth.

The better "the fit" between your plans for SRP and your other school improvement plans and decisions, the better SRP will work. This is true for the correlation between your planning and decision-making processes, as well as the content of the plans and the decisions.

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[1] However, your school can plan a version of SRP in which your SRP year does not correspond to your school year. For instance, it can be shorter than the school year. Your school might begin its first SRP unit in January, or, in its second SRP year, your school might work on SRP during only one semester. Your SRP year can also be longer than your school year, lasting into the summer or starting during the summer. If your SRP years are shorter or longer than your school years, a rule of thumb for planning is to give yourselves three months to plan before putting your plans into action.

Participating in the planning process

While the development of SRP plans is the responsibility of the Project Team, there are good reasons for other staff members to be involved.

- More of the staff know *what's in* the plan and can help the team describe it to other staff members, parents, and community members.
- Participation in the development of the plans builds ownership in them.

Participation does not necessarily mean sitting down at the table with the Project Team and actually putting the plans on paper—that can be cumbersome and inefficient. However, there are strategies for including everyone who wants to participate. For instance, the Project Team can hold a "pre-planning" meeting to solicit ideas and advice, and drafts of the plans can be circulated for review and comments.

Making your plans public

Once your plans are developed, the next step is to make them public. Some people, such as your school board members and parents, might not want to know all the details. You might prepare a summary for them. You and your colleagues, on the other hand, will need copies of the entire plan to understand and keep track of what you will be doing.

Revising your plans during the school year

Keep in mind that these are *working* plans that are very likely to be revised during the school year. Implementation will reveal your plan's strong points and the areas needing improvement.

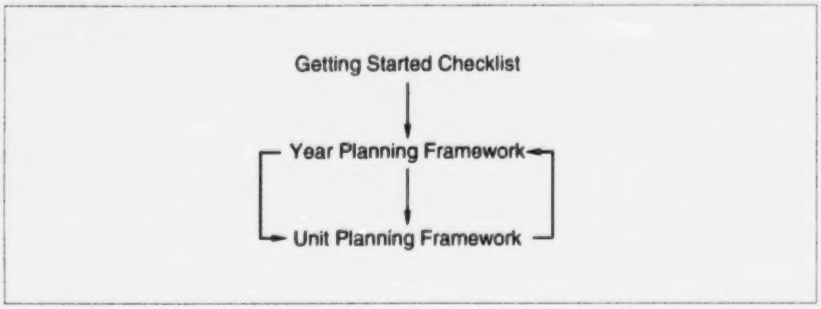
The Year and Unit Planning Frameworks

The goal of the SRP planning process is to produce an "itinerary" that answers five questions about activities for each year and for each unit.

1. What is the activity?
2. Why will it take place?
3. Where and when will it take place?
4. What resources will be used?
5. Who will coordinate it and who will participate in it?

The year and unit planning frameworks are tools designed specifically to answer these five questions.[2] Use the Year Planning Framework first, then plan individual units. Both frameworks incorporate information from the "Getting Started Checklist" pp. 3-7 in the Tool Kit). You will probably move back and forth between the Year and Unit Planning Frameworks a time or two before you are satisfied (see figure 2).

FIGURE 2



The Year Planning Framework

The Year Planning Framework (see Figure 3) is designed to help you organize your time and clarify your focus as you plan for your SRP year. Use this framework to set objectives for the year; identify the units you are working on; plan events and activities for staff, parents, and community members; and set a time line. You will want to refer to it often as the year progresses. (Master copies are located in the Tool Kit on pages 18-21.)

Each of the nine sections provide space to list important planning data. The following explanations will help you get started.

1. **Project Team**
2. **Participants**
   This information comes from the "Getting Started Checklist."
3. **Objectives**
   Your year plan includes objectives for the staff, the students, the school, and the community. These objectives are tied to the units for the year. For instance, in your first year of SRP you will cover the units *Strategic Reading and Teaching: An Introduction* and *Prior Knowledge*. Your objectives might be similar to the following:

   Staff: To develop a solid and shared knowledge base about the fundamentals of strategic reading and teaching and a common language for using that knowledge.

   To understand the research basis for the strategy of using prior knowledge and to incorporate the strategy into instruction — using it with our students and teaching them to use it independently.

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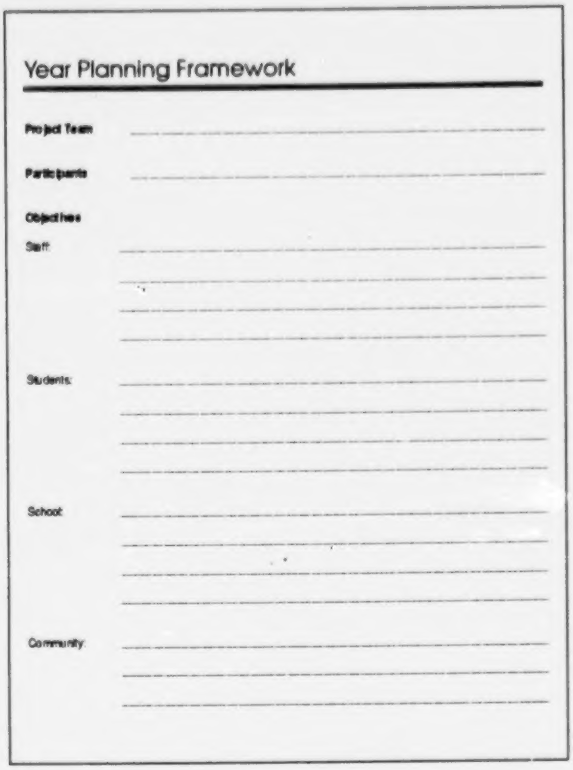
[2] Your school may have its own tools for answering the questions. If so, we suggest that you compare them to the year and unit frameworks to see which tools will work better.

FIGURE 3



Year Planning Framework

Project Team ______________________

Participants ______________________

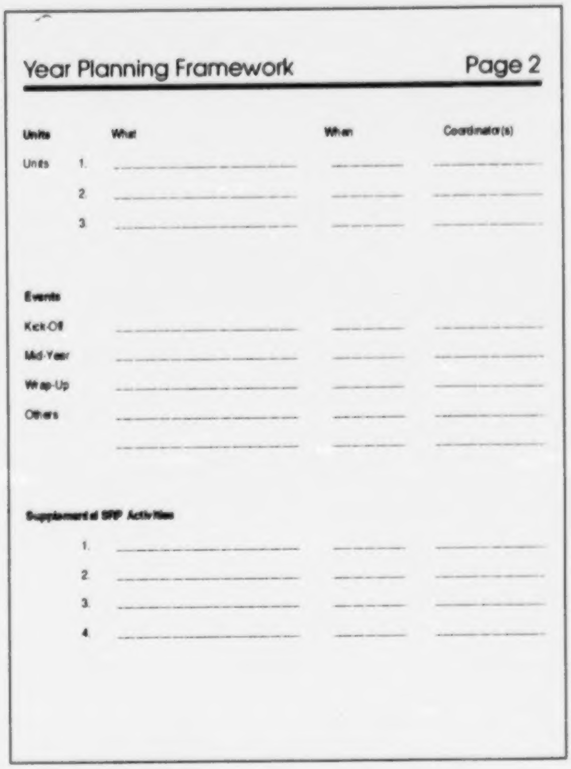
Objectives

Staff: ______________________

Students: ______________________

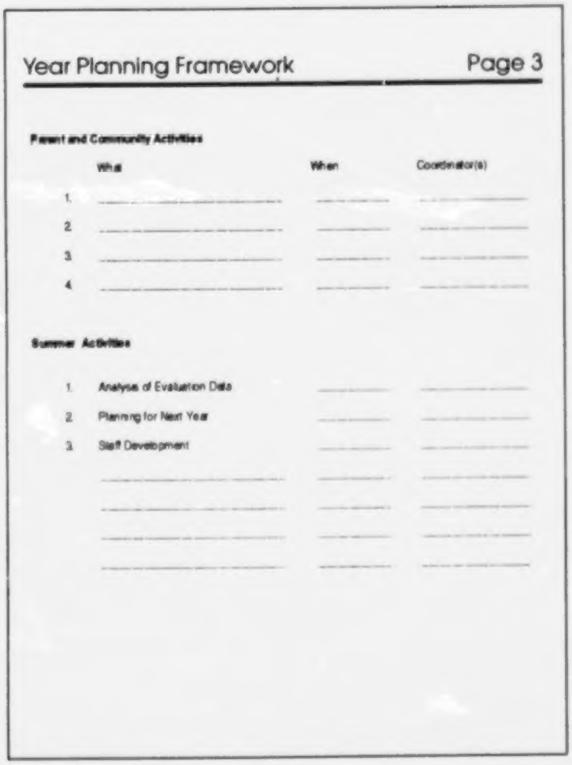
School: ______________________

Community: ______________________



Year Planning Framework Page 2

Units		**What**	**When**	**Coordinator(s)**
Units	1.			
	2.			
	3.			
Events				
Kick-Off				
Mid-Year				
Wrap-Up				
Others				
Supplemental SRP Activities				
	1.			
	2.			
	3.			
	4.			



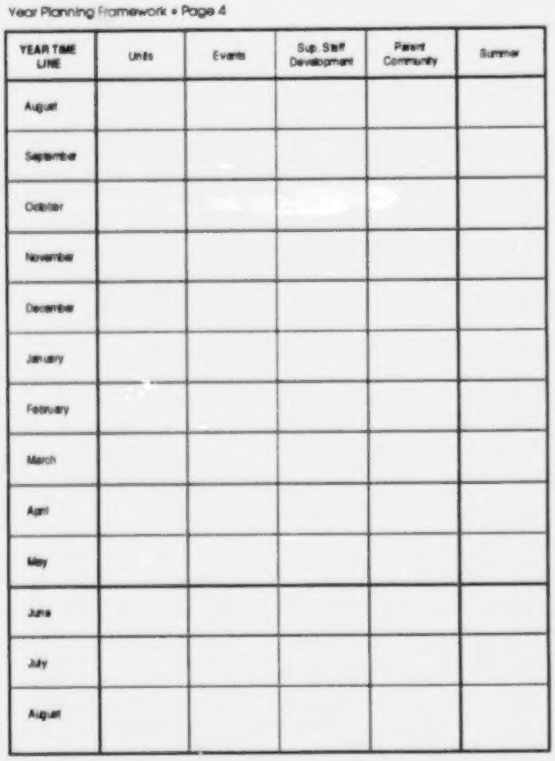
Year Planning Framework Page 3

Parent and Community Activities

	What	When	Coordinator(s)
1.			
2.			
3.			
4.			

Summer Activities

1.	Analysis of Evaluation Data		
2.	Planning for Next Year		
3.	Staff Development		



Year Planning Framework • Page 4

YEAR TIME LINE	Units	Events	Sup. Staff Development	Parent Community	Summer
August					
September					
October					
November					
December					
January					
February					
March					
April					
May					
June					
July					
August					

Students:	To think and talk about reading as a strategic process. To use prior knowledge independently before, during, and after reading a broad range of texts at or above grade level
School:	To begin applying your strategic reading and teaching knowledge base to all decisions about the reading program and about reading in your other programs To become comfortable with having observers in your classrooms and being models and coaches for your colleagues
Community:	To keep your parents and community members up to date on SRP, and to provide opportunities for interested parents and community members to learn about strategic reading and prior knowledge

4. Units

During your first year, you will cover the units *Strategic Reading and Teaching: An Introduction* and *Prior Knowledge* in that order. In the following years, you select the units and order them to fit your priorities.

Note
The decisions about staff participation you recorded on your "Getting Started Checklist" are tied to your objectives and, after the first year, to your selection of units.

> When staff who did not participate in the first year join the project in its second year, the third unit slot, and even a fourth, often become necessary when planning your second and third years of SRP. The new participants will be starting with the first two units, while, in many cases, the "old participants" will be moving on to new units. It helps, in these cases, to identify in the framework which participants will be working on which units.
>
> There are advantages to having "old" and "new" participants from year to year. There also are disadvantages, primarily the increased complexity of SRP when participants have different levels of knowledge and expertise. The complexity can be reduced by planning to bring "new" and "old" participants to the same unit at the same time. The basic strategy is for old participants to "slow down." For instance, they can cycle through the first two units a second time. They can become staff development resources — leading discussions, modeling, coaching, and so on — for the new participants.

5. Events

The three suggested events (as their names suggest) — Kick-Off, Mid-Year, and Wrap-Up — serve to initiate, take stock of, and conclude the year's activities. They also contribute to making SRP a school-based project. An event might be the usual before- or after-school meeting, a retreat, a pot-luck dinner, or an assembly. They are limited only by your ingenuity. You might also consider a "combination" event that involves students, parents, and community members. For instance, the school day might end with an assembly at which students use their reading strategies before, during, and after watching a video or listening to a speaker. The staff could then meet to discuss the project and any needed adjustments for the future. Afterward, over dinner, the Project Team would report on the project to school board members. Later, the team would update parents and community members, and teachers and students would demonstrate strategic reading and teaching.

6. **Supplemental SRP Activities**

These activities include school visits, workshops, conferences, seminars, courses, and symposia. Use the telephone and the mail to keep your list of activities growing. Call neighboring schools to find what they have available. It also helps to be on the mailing lists of your intermediate service agency, state education agency, local colleges and universities, and professional organizations such as the International Reading Association and your state reading association.

For most of us, the tendency is to look elsewhere for activities, overlooking opportunities to bring the activities to us. In many cases, invitations to provide staff development will pay off.

7. **Parent and Community Activities**

Some or all of the parent and community activities may come from the "Getting Started Checklist." Remember when planning these activities that the more parents and community members know about and are involved in SRP, the stronger the project. It usually helps to include two kinds of activities — those that keep them updated on SRP's progress and those that involve people who are interested. Again, there is a broad range of possibilities for each kind, from the usual to the not-so-usual. In-the-know possibilities range from project reports at meetings or in newsletters and invitations to visit classrooms to "spots" on community access television and radio. Involvement possibilities include workshops on topics such as strategic reading at home, using the public library strategically, and invitations to participate in appropriate unit staff development activities.

8. **Summer Activities**

At this point, two of the framework slots are filled — analysis of evaluation data and planning for next year. As discussed above, planning can begin before the school year is over as can the analysis (see Part 2, pp. 15—16). However, in most cases, the analysis and planning will continue over the summer. If you use an evaluation that collects data at the end of the school year, the analysis and planning *cannot* be completed before the summer.

There are slots for summer staff development activities, should you decide to include them in your SRP.

9. **Year Time Line**

Use this section to make a project schedule for the year. The schedule is made by transferring the units, activities, and their times.

The Unit Planning Framework

The Unit Planning Framework (see Figure 4 below) is used to plan the Strategic Reading and Teaching units identified in your Year Planning Framework. (Master copies are located in the Tool Kit, pp. 22-24.) In the first year, you will plan *Strategic Reading and Teaching: An Introduction, Prior Knowledge,* and perhaps a third unit. In later years when you decide which units to cover, you will plan at least two units.

The Unit Planning Framework includes "slots" for the activities that you and your colleagues will use to move through the five phases of evolutionary staff development (see Part 1, pp. 7-10)—*Building a Knowledge Base, Observing Models and Examples, Reflecting on Your Practice, Changing Your Practice,* and *Gaining Expertise*. It also includes suggested time spans for the five phases since a unit will generally last for two months. Your unit plans also specify coordinators, times, locations, equipment, and materials.

The Strategic Reading and Teaching Units in Part 4 of this Notebook contain the material you will need to plan each unit. Each unit contains:

1. Suggestions for activities in each of the five phases of this evolutionary staff development
2. An introductory essay on the unit topic
3. An annotated bibliography of readings on the topic
4. Selected readings on the unit topic
5. An audiotape of examples and models that illustrate how the reading strategies are used and taught

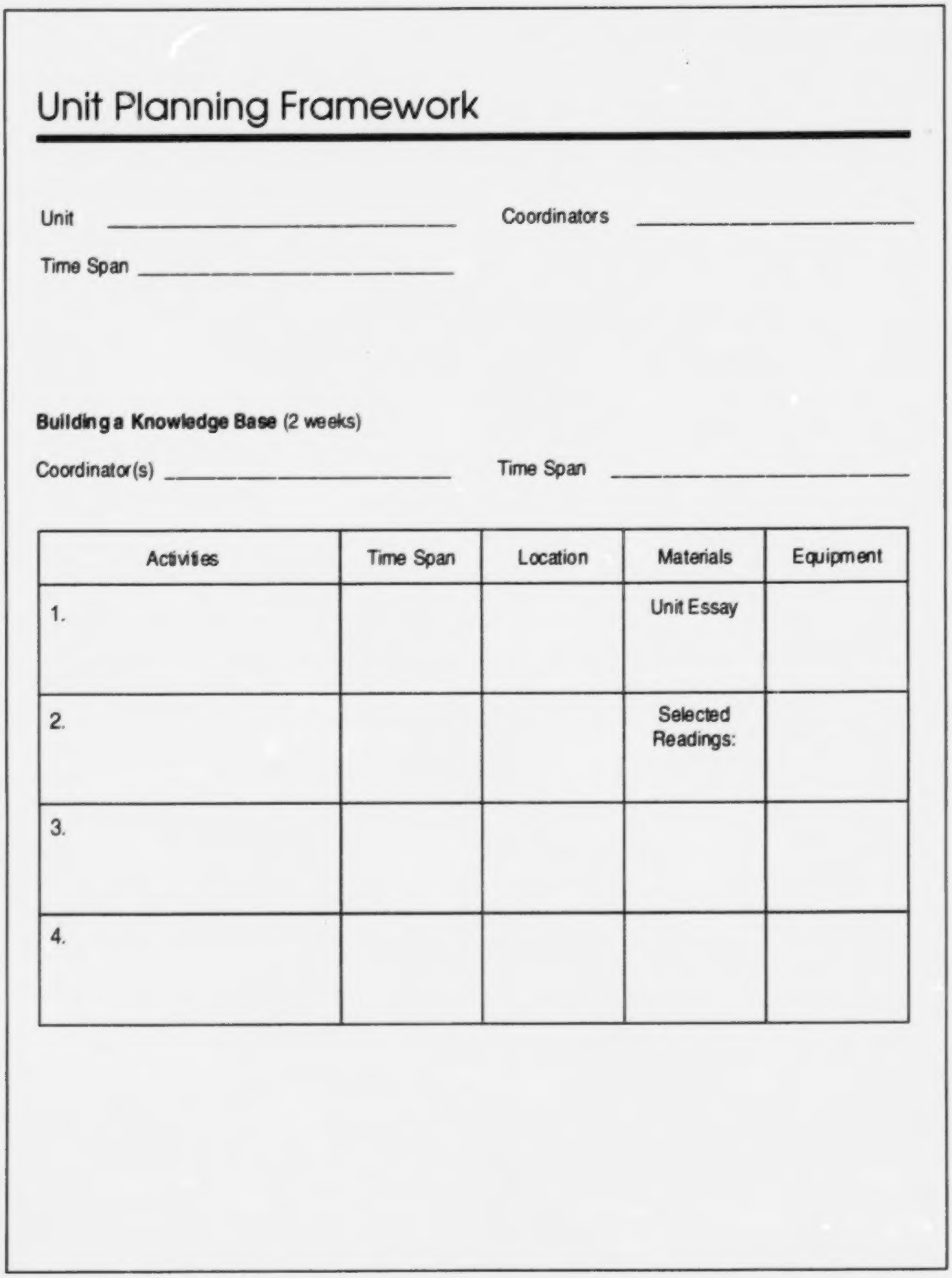
Note: Using the suggestions for activities

Each unit's suggested activities for the five staff development phases are good starting places for planning units. The following descriptions of how the phases can be planned also include suggestions for activities.

Using the Unit Planning Framework, plug the essay, bibliography, and selected readings into the first phase *(Building a Knowledge Base),* and the audiotape into the second phase *(Observing Models and Examples).* The basic "materials" to plug into the other phases are you, your colleagues, your students, and the reading instruction and instructional materials in your classrooms. The activities suggested for the five phases are just that: possibilities for using and learning from the unit materials.

The Unit Planning Framework (Figure 4 and pages 22-24 in the Tool Kit) is followed by notes on its components.

FIGURE 4



Unit Planning Framework

Unit ______________________________ Coordinators ________________________

Time Span ___________________________

Building a Knowledge Base (2 weeks)

Coordinator(s) _________________________ Time Span _________________________

Activities	Time Span	Location	Materials	Equipment
1.			Unit Essay	
2.			Selected Readings:	
3.				
4.				

FIGURE 4 continued

PART 2

Unit Planning Framework • Page 2

Observing Models and Examples (1 week)

Coordinator(s) ______________________ Time Span ______________________

Activities	Time Span	Location	Materials	Equipment
1.			Unit audiotape	
2.				
3.				
4.				

Reflecting on Your Practice (1 week)

Coordinator(s) ______________________ Time Span ______________________

Activities	Time Span	Location	Materials	Equipment
1.				
2.				
3.				
4.				

FIGURE 4 continued

Unit Planning Framework • Page 3

Changing Your Practice (2 weeks)

Coordinator(s) ______________________ Time Span ______________________

Activities	Time Span	Location	Materials	Equipment
1.				
2.				
3.				
4.				

Building Expertise (2 weeks)

Coordinator(s) ______________________ Time Span ______________________

Activities	Time Span	Location	Materials	Equipment
1.				
2.				
3.				
4.				

Building a Knowledge Base

The unit's essay and selected readings are your information sources about strategic reading and teaching. Your first planning decision for this phase is to determine *which* readings to use in addition to the essay.

The second task is to decide *how* you and your colleagues will use the essay and readings. These decisions are just like those you make when planning reading instruction for your students. For instance, the staff might make predictions about the essay, read it on their own, and then meet as a group. They can discuss which predictions were verified and generate questions that they want addressed by the selected readings. You might pair the staff to read the selected readings and develop answers to the questions and then meet again as a group to share answers.

Observing Models and Examples

SRP provides one source of models and examples to study — the unit audiotape. A second source is reading instruction in your own classrooms. Your reading specialist, and likely some teachers, will be able to model reading strategies and strategic reading instruction. The plans and materials you use for reading instruction can be a third source. For instance, you can examine each other's best lesson and unit plans, good texts for teaching a strategy, or assessment instruments. Other plans and materials need not be good ones; pairs or small teams might analyze a lesson in a basal reading series that has been problematic.

Planning for this phase involves identifying *which* examples to use in addition to those on the audiotape and determining *how* the models and examples will be examined. For instance, staff might listen to the audiotape together and consider what makes the models good for strategic reading and teaching. Or, you might schedule a week during which individuals listen to the tape on their own and then meet as a group to share their analyses of the models. Similarly, various grouping and scheduling patterns can be used to observe models in the classroom and examine instructional materials and plans.

Reflecting on Your Practice

Here, the focus shifts from increasing your knowledge about strategic reading and teaching to applying it to your own reading instruction. Each person on your staff will do this differently. The key to planning this phase is to develop some activities for *individuals* to reflect on their reading instruction and plan for any changes. You will also need to develop some *group* activities that will enable staff to support and give feedback on each other's reflections and plans. For instance, an individual activity would be to brainstorm changes and then categorize them. Then the teachers of various grade levels could share and discuss the categorized changes.

Changing Your Practice

This phase moves the application of your knowledge about strategic reading and teaching into your classrooms. Again, each staff person will do this differently.

The main concept to keep in mind when planning both individual and group activities is *coaching*. In SRP, coaching is understood broadly; it includes more than watching someone teach and then giving feedback. Coaches guide all aspects of expert performance inside and outside the classroom, such as preparation and self-assessment. Coaches provide relevant information, model instructional practice, and give feedback. Further, while it is not as easy as having someone coach you, you can coach yourself. For instance, you are coaching yourself when you run scenarios before your mind's eye as part of planning a reading strategy lesson and when you jot down what went well and what did not after the lesson. The question to keep asking while planning this phase is, "Do the activities we have planned help staff members to coach each other and to coach themselves?"

Gaining Expertise

This phase is, in part, a continuation of the *Changing Your Practice* phase. When you refine your instructional methods, you change them further. Therefore, the coaching-oriented activities of the previous phase fit here as well. The other part of the phase, becoming an instructional resource for others, involves using your expertise to assist others by providing information, modeling, and coaching. Usually these activities do not need much planning. As staff members become more expert, they often begin to model and coach on their own and to suggest other activities in which they can be of assistance to their colleagues. So, the only activity you might need for this part of the phase is one in which staff can generate ideas for using their expertise for their mutual benefit.

Note: The challenge of a modeling and coaching schedule

The classroom visits and the follow-up discussions that are essential to modeling and coaching may present a scheduling challenge. Classroom visits mean two (perhaps even three or four) staff members in the same room at the same time. While the follow-up discussions can take place later (after school, before school the next day, and so on), they are usually more useful when they take place soon after the visit. One strategy for addressing the potential problem is to find out "who can match up with whom" and then deal with the difficult cases. Potential steps in this process are described below.

1. Have each staff member (including those who are models and coaches) write their answers to the following questions.

   When can you visit another classroom?

   When can someone visit your classroom and observe reading instruction? (The times need not be your official reading lessons. If you are teaching reading in other subjects, include those times as well.)

   When can you meet for follow-up discussions?

2. Ask models and coaches to read the completed sheets and, where there are matches, to "sign up" a) to be visited (models), b) to visit (coaches), and c) for follow–up conversation (both). Once they "match up," they cross off that available time on their own pieces of paper.

3. Examine the pieces of paper and identify who, at this point, is not scheduled to observe models and who is not scheduled to be coached.

4. Note that after Step 3, you know the size of your scheduling challenge. There are three general approaches for dealing with these difficult cases, and they can be combined.

   a. Sometimes there are enough models and coaches and enough visiting times, but they do not match well. The approach, then, is to check staff schedules to find different times for visits and discussions. You might want to rearrange the schedules. In some cases, one teacher can work with two classes at once, enabling the other teacher to visit another classroom. Staff can reschedule reading instruction, creating more possibilities for coaching. Consider using teacher aides, parent and community member volunteers, and substitutes to break scheduling log jams.

b. Sometimes there are neither enough models and coaches, nor enough time for visits in their schedules. Find more staff members willing to be models and coaches. One version of this approach is peer coaching. Two staff members who do not believe that they have the expertise to be coaches or models for everyone often are willing to coach and model for each other, each gaining the expertise through the processes. The search for models and coaches will become easier over time as more staff members come to feel more comfortable and confident in those roles.

c. It can be more difficult to develop a schedule for visits than for follow-up discussions. This is because visits to observe "live" classroom instruction must take place during the school day. Thanks, however, to audio and video technologies, you can "visit" pre-taped classroom instruction. Audiotaping instruction is easier and cheaper. A relatively good audiocassette recorder with good batteries, placed in an average-size classroom will pick up most of what the teacher says and some of what the students say. Videotaping instruction, on the other hand, while able to provide a richer "visit," is more difficult. Camera position, focus, and movement play critical parts in producing a useful videotape, and, in most cases, a camera person is necessary to do the job.

Long-Range Planning

By the end of the third year of your Strategic Reading Project, all or many of your school's staff will have moved through the six strategic reading and teaching units. As that point draws near, perhaps even toward the end of your second year, the question will arise, "What will happen to the project in the future?" There are three general answers to the question:

1. SRP will stay as it is: a staff development project for reading improvement to which your school devotes much of its staff development energy and resources. You might develop new strategic teaching and reading units, focus more attention on reading curriculum and assessment, or seek new partners.
2. SRP will be de-emphasized. It could remain a primary staff development priority, but become one of two. Your school might use its evolutionary staff development capacity to start a similar project in mathematics, science, or social studies. Or perhaps SRP will become a secondary priority — keeping a study group; supporting modeling and coaching; and encouraging the exchange of information on research and successful practice, lesson plans, and instructional materials.
3. SRP will end. While a school's reading program can never be too good, other improvement priorities might necessitate the reallocation of resources devoted to SRP.

One way to decide which of these answers is right for your school is to develop a long-range plan for staff development, ordering your staff development priorities, and charting how they can be accomplished. While there are numerous kinds of long-range plans, they typically are more general than specific and more flexible than rigid.

The Long-Range Planning Module and the process for using it (see pp. 25-29 in the Tool Kit.), like the frameworks and processes for developing year and unit plans, are suggestions. You should use them if they make sense for your school.

When developing your school's strategic plan, you should consider creating a new team. There are at least two good reasons for expanding the team beyond your SRP Project Team.

- The team will need new kinds of information, particularly about other programs at your school, your community, and the district and state education systems. Who has the expertise and who would be able to join the team will depend on your school's circumstances. If your school is part of a small rural district, for instance, the likelihood that the district superintendent and one or more board members will be able to participate is greater than if your school is part of a large, urban district.
- An expanded team will increase ownership in the process and in the resulting plan.

It is important that stakeholders in your school, community, and district have an opportunity to contribute ideas to the process and critique drafts of the SRP plan. The final version should be made as public as possible.

Finally, the plan should be treated as a working document. Just as an unexpected change in the weather often means recharting a plane's course, a new state education initiative or passage of a school funding referendum will likely mean revisions in your long-range plan.

MONITORING AND EVALUATING YOUR STRATEGIC READING PROJECT

Monitoring and evaluating SRP are closely-related processes. Both have to do with assessing the value of the project. However each has a different purpose. Monitoring is ongoing assessment of how well the project is progressing. Evaluation assesses the progress of the project *over time.* The Project Team has primary responsibility for monitoring and evaluating SRP in ways that make sense for your school.

This section has two parts. The first part describes the monitoring and evaluation processes, focusing on what and how to assess. The second part includes six assessment strategies and suggestions for using them to monitor and evaluate SRP.

Project Assessment Processes: Monitoring and Evaluation

There are two basic assessment questions:

1. What should be assessed?
2. How should it be assessed?

Both questions are tied to the SRP goals: (1) for staff to become more strategic reading teachers and (2) for students to become more strategic readers.

Strategic Reading Project ———> Staff become more strategic teachers ———> Students become more strategic readers

In answer to the first question, the Project Team should assess:

- SRP itself
- The development of staff as strategic reading teachers
- The development of students as strategic readers
- The connection between SRP and the development of staff as strategic reading teachers
- The connection between the development of staff as strategic reading teachers and the development of their students as strategic readers

In terms of *how* SRP is to be assessed, you can use a quantitative approach, a qualitative approach, or both. Quantitative approaches collect and analyze data that can be counted (e.g., most survey and standardized test data). Qualitative approaches collect and analyze data that cannot be counted (e.g., eye-witness accounts and rich descriptions or "stories" of individuals or groups). We recommend that you use both quantitative and qualitative approaches for assessment. The set of six assessment strategies (see Part 2, pp. 31-40) includes both approaches.

Monitoring SRP

Almost everything that takes place in your school and classrooms that has to do with reading and reading instruction is data about the well-being of SRP and its impact on your staff and students. For instance, all conversations about reading between students and staff are data about the development of strategic teachers and strategic readers. Attendance lists for SRP activities are data about the health of SRP. Students' use of the library and participation in instruction, and staff requests for new reading materials and professional journals and their participation in reading conferences, courses, and seminars are data that can be collected and analyzed. The challenge then is not to find data, but to make good selections about what data are most useful for monitoring SRP so that you can adjust the project to make it better as you go along. The two rules of thumb for making good selections are:

1. *What to assess*
   Concentrate on collecting and analyzing data about the project and the development of staff as strategic teachers and of students as strategic readers. Leave the two connections—project/development of strategic teachers, and development of strategic teachers/development of strategic readers—for the evaluation.
2. *How to assess*
   Use assessment strategies that collect and analyze data quickly. Monitoring must be *timely* to be useful in deciding whether adjustments are needed and, if so, what they are.

A simple, yet effective, monitoring plan for SRP might consist of two activities. First, Project Team members make observations when engaged in project activities and in classrooms, the library, and the faculty lounge. Second, they discuss, on a regular basis, what they have seen and heard and what adjustments are suggested. These monitoring activities can be supplemented by jotting notes or keeping journals and by soliciting similar observations and suggestions from other staff members.

Evaluating SRP

In evaluating SRP, the challenge again is not to find evaluation data, but to select the most useful data to collect and analyze.

Two kinds of data are useful for evaluating SRP progress:

1. *Comparative Data*
   Data that measures changes in reading instruction and students' reading abilities
2. *Causal Data*
   Data about the causes of the changes — how SRP brings about changes in reading instruction and how changes in reading instruction bring about changes in students' reading abilities

The easiest way to compile and analyze these kinds of data is to collect data at the beginning and end of the school year and analyze the data after the year is completed. This data can be supplemented with data collected between the two points, giving one or more "mid-course" readings on progress during the year.

There are three rules of thumb for selecting the most useful data for the evaluation.

1. Collect both comparative and causal data about changes in reading instruction and SRP's role in causing those changes. For instance, your evaluation might show that reading instruction is becoming more strategic and that staff attribute the improvements to some SRP activities and not to others. These findings would suggest either eliminating the activities that are not working from the next year's plan or altering them.
2. Increase, as the project continues, the emphasis on evaluating students' development of strategic reading abilities. This rule holds for two reasons. First, it takes time for changes in reading instruction to bring about changes in students' reading abilities. Your evaluation procedures should reflect this fact. Second, the proof of SRP's success can be seen in the development of student's strategic reading abilities. The longer the project lasts, the more their abilities should develop.
3. Consider incorporating monitoring data into the evaluation. For instance, your staff might assess the usefulness of modeling at the beginning, middle, and end of the school year. The beginning and middle assessments can be analyzed as part of your monitoring procedures and all three assessments can be compared for your evaluation.

Six Project Assessment Strategies

The six project assessment strategies described below can be used to assess SRP. Three of the strategies—SRP Activity Assessments, Lesson and Lesson Plan Analysis, and Metacognitive Interviews—are monitoring strategies that can be used for evaluation as well. The other three—the Reading and Staff Development Beginning-of-Year and End-of-Year Staff Surveys, Using Standardized Student Reading Tests, and the Portfolio Approach — are evaluation strategies.

The strategies are suggestions; your school need not use all or any of them. However, if your school does select from among the six, we would recommend SRP Activity Assessments and the Reading and Staff Development Beginning-of-Year and End-of-Year Staff Surveys as a bare-bones minimum. If your school decides to use an entirely different set of strategies, the set should cover:

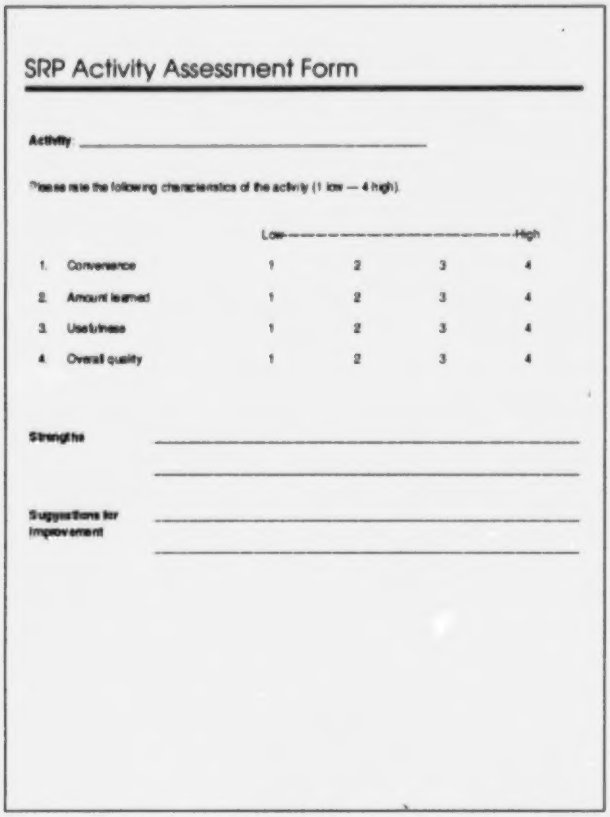
- SRP
- the development of strategic teachers
- the development of strategic readers
- the SRP/teacher development connection
- the teacher development/student development connection.

SRP Activity Assessments

This first monitoring strategy provides quick staff feedback on any of the activities in your year or unit plans. In your monitoring plan, specify the activities for which the assessment will be used. Use the SRP Activity Assessment Form shown on page 32. (The master copy is in the Tool Kit, p. 30.)

When staff meet together for activities, have them fill out the forms at the end of the activity. When staff conduct activities on their own or on different timelines, distribute the assessment forms beforehand, include a return date, and ask that they send them to you when the activity is completed. These forms can then be used for feedback on activities such as coaching over a two-week period or participating in a workshop. Staff members might keep a stock of the assessment forms to provide feedback on activities of their own choosing as well as those that are part of the "official" monitoring process.

FIGURE 5



SRP Activity Assessment Form

Activity: ______________________

Please rate the following characteristics of the activity (1 low — 4 high).

		Low			High
1.	Convenience	1	2	3	4
2.	Amount learned	1	2	3	4
3.	Usefulness	1	2	3	4
4.	Overall quality	1	2	3	4

Strengths ______________________

Suggestions for improvement ______________________

The data from the forms can be analyzed in a number of ways. In some cases, reviewing them to get a sense of the aggregate response can be sufficient. In other cases, a more rigorous analysis—calculating averages for items 1-4 and identifying patterns in strengths and suggestions for improvements—may make better sense.

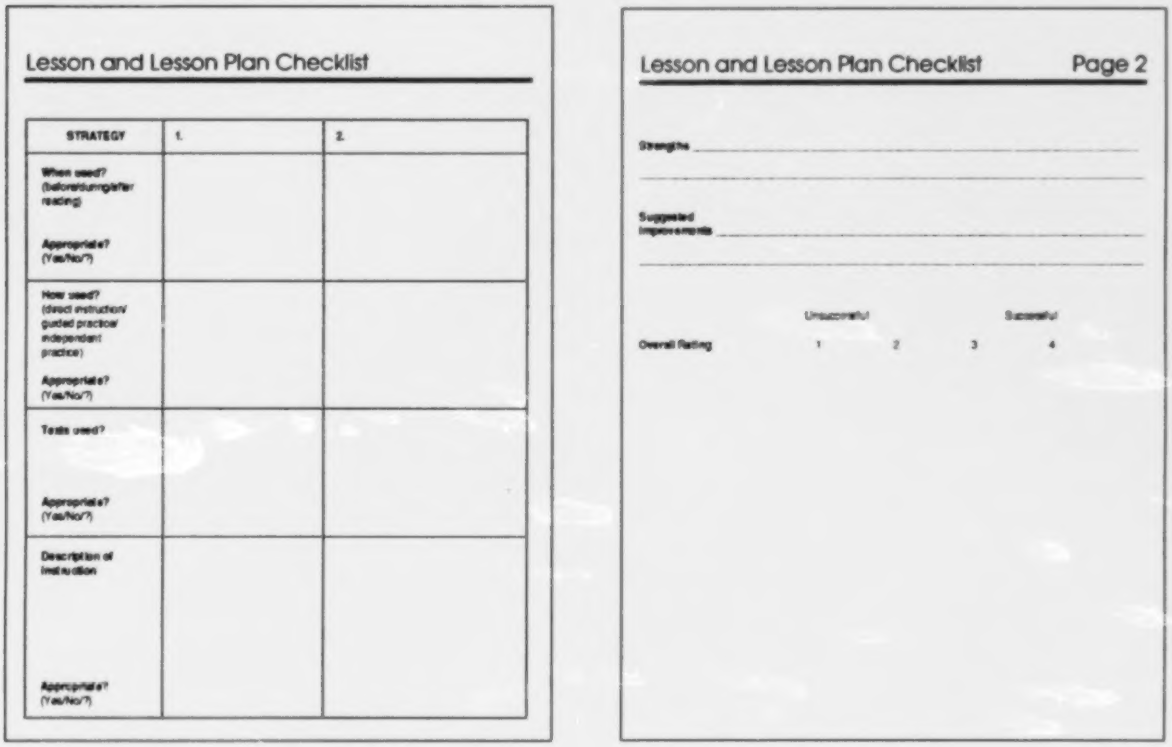
Data from assessment forms for the same or similar kinds of activities also can be combined to compare to other kinds of activities. For instance, you can compare data on activities in large group meetings to data compiled on coaching activities. What kinds of activities are rated higher? Do the activities that are considered good in both categories have similar characteristics.

Finally, the data can be analyzed for the evaluation, as well as monitoring, purposes. Data from the year's first three large group meetings can be combined and compared with the combined data for the year's last three large group meetings. Similarly, you can compare assessment data from individual activities in a particular phase of one strategic reading and teaching unit with data from similar activities in the same phase of a later unit.

Lesson and Lesson Plan Analysis

A strategy for monitoring the development of staff as strategic teachers is to analyze reading lessons and lesson plans. In your monitoring plan, specify time periods when lessons or lesson plans

FIGURE 6



Lesson and Lesson Plan Checklist

STRATEGY	1.	2.
When used? (before/during/after reading) Appropriate? (Yes/No/?)		
How used? (direct instruction/ guided practice/ independent practice) Appropriate? (Yes/No/?)		
Texts used? Appropriate? (Yes/No/?)		
Description of instruction Appropriate? (Yes/No/?)		

Lesson and Lesson Plan Checklist Page 2

Strengths ____________________

Suggested improvements ____________________

	Unsuccessful			Successful
Overall Rating	1	2	3	4

will be analyzed. The checklist below (master copy on pp. 31-32 in the Tool Kit) can be used for this analysis.

The data from Lesson and Lesson Plan Checklists can be analyzed in a variety of ways. The data can be reviewed to get a general sense of the strategies that staff are teaching and how well they are teaching them, or it can be analyzed in detail. For instance, the average overall rating of the lessons monitored can be computed, the strategies in the lessons tallied, and, for each strategy, appropriateness frequencies figured. The result is a description like the following.

FIGURE 7

Twelve lessons were observed during the monitoring period. Their average overall rating was 3.6 on a four-point scale. Eight lessons taught the prior knowledge strategy, six taught text structure, and two taught inferencing. Appropriateness distributions for the three strategies were—

	Prior Knowledge			*Text Structure*			*Inferencing*		
	Y	N	?	Y	N	?	Y	N	?
When used	4	2	2	3		3	2		
How used	3	2	3	3	1	2	2		
Text used	6		2	6			2		
Instruction	6	2		3	3		1		1

It appears that we are doing a bit better on teaching prior knowledge than on teaching text structure. We can't really tell about inferencing in comparison to the other two this time because only two lessons were taught. However, the inferencing instruction was very good. Using appropriate texts is the biggest strength, followed by appropriate instruction.

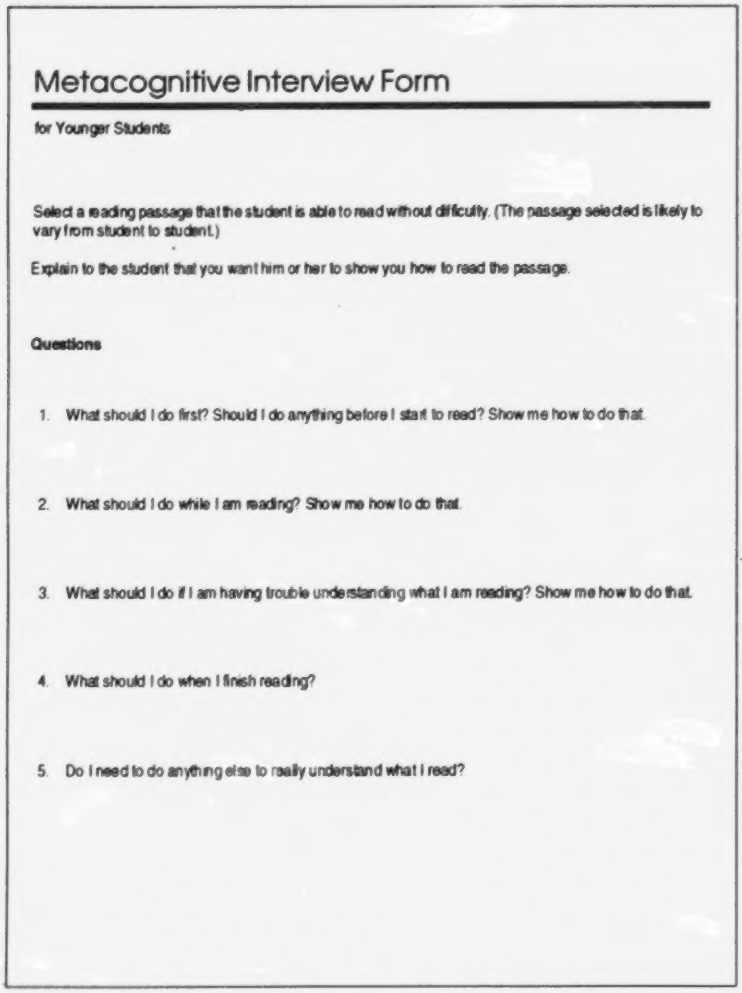
The Lesson and Lesson Plan Checklist can be used to evaluate, as well as monitor staff members' development as strategic teachers. To evaluate their development, use the Checklist when observing lessons at the beginning and end of the year. Compare the beginning and ending Checklists for each staff member. You can also use the Checklist for staff development. For instance, staff can use it when they are observing models, analyzing their own lesson plans, and coaching. It is a good idea for each staff member to keep a stock of Checklists on hand to use when the occasion arises.

It should be noted that a filled-in Checklist represents one person's assessment of a lesson or lesson plan. Another person's assessment of the same lesson or lesson plan might be very different. Thus, the data from the Checklist must be used with care.

Metacognitive Interviews

Staff members will be monitoring their students' development as strategic readers daily as part of "business as usual" in their classrooms. However, it is important to use at least one monitoring strategy for looking across both students and classrooms. One strategy is to conduct Metacognitive Interviews with individual students in which they tell the interviewer about reading and what they do when reading. Below are two Metacognitive Interview Forms — the first (Figure 8) for younger students and the second (Figure 9) for older students. (Master copies are on pps. 33-34 in the Tool Kit.) It is a good idea to conduct metacognitive interviews two or three times a year. If they are conducted at the beginning and end of the year, they can be used to evaluate, as well as monitor, students' development as strategic readers.

FIGURE 8



Metacognitive Interview Form

for Younger Students

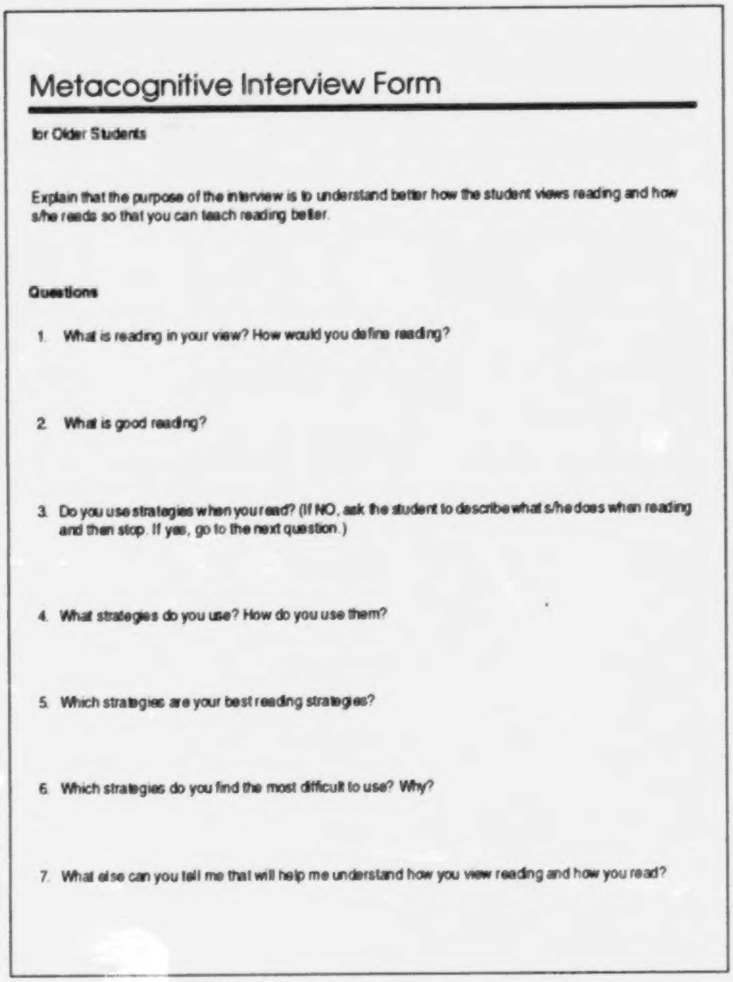
Select a reading passage that the student is able to read without difficulty. (The passage selected is likely to vary from student to student.)

Explain to the student that you want him or her to show you how to read the passage.

Questions

1. What should I do first? Should I do anything before I start to read? Show me how to do that.
2. What should I do while I am reading? Show me how to do that.
3. What should I do if I am having trouble understanding what I am reading? Show me how to do that.
4. What should I do when I finish reading?
5. Do I need to do anything else to really understand what I read?

FIGURE 9



Metacognitive Interview Form

for Older Students

Explain that the purpose of the interview is to understand better how the student views reading and how s/he reads so that you can teach reading better.

Questions

1. What is reading in your view? How would you define reading?
2. What is good reading?
3. Do you use strategies when you read? (If NO, ask the student to describe what s/he does when reading and then stop. If yes, go to the next question.)
4. What strategies do you use? How do you use them?
5. Which strategies are your best reading strategies?
6. Which strategies do you find the most difficult to use? Why?
7. What else can you tell me that will help me understand how you view reading and how you read?

The notes taken on the forms during the interview are your data. It is a good idea to keep extra paper handy. The interviews can move away from the questions on the form, and you will think of more questions to ask. The interviews also can be audiotaped as backup for the notes.

For staff members to benefit most from the interviews, they should interview their own students and analyze their own notes. Their analyses can then be passed on to a team to be aggregated and analyzed as a whole. There are many ways you can analyze these notes. Three of the possibilities are holistic scoring, question-by-question rating, and key concept tabulation.

1. *Holistic scoring* involves assessing all the notes on a form at once and giving the form a "grade" on how strategic the student's replies were.
2. *Question-by question* rating is similar. Students' responses to each question are "graded" on how strategic they were.

3. *Key concept tabulation* involves tallying the number of times students used key strategic reading concepts, such as prior knowledge and text structure, in their replies. Words or phrases that have the same meanings are tallied under the same concept. For instance, "what I already know" and "prior knowledge" are different phrases for the same concept, as are "text structure" and "how the information is organized." Key concepts can be tallied for entire interviews or question by question.

Each of the three methods relies on individuals to do their own assessments. And, as with the Lesson and Lesson Planning Checklist, different individuals may assess the same set of interview notes differently. Thus, the metacognitive interview data needs to be used carefully. Further, it is a good idea for those who are doing the analysis to analyze a small set of interviews first and compare their results.

Reading and Staff Development Beginning-of-Year and End-of-Year Staff Surveys

The first of the three evaluation strategies are surveys of staff members about SRP, their reading instruction, and their students' reading abilities at the beginning and end of the school year. The two surveys are reproduced below and copies are found on pps. 11-17 in the Tool Kit. (The Beginning-of-Year Survey also was presented and discussed in Part 2, pp. 7-8, in the "Getting Started" section.)

The first step in analyzing the surveys is to calculate frequency counts or means for the Likert scale items (ratings of 1-4 and 1-5) and frequency counts of similar responses to open-ended items. If some of your staff are not participating in SRP, include them in the responses of participants and non-participants. (Analyze the Beginning-of-Year Survey as soon as staff has completed it so that you can use the results during the year.)

The second step is to make comparisons to see what changes have taken place.[3] For the most part, the comparisons are item by item (e.g., Item 2, Curriculum, on the Beginning- and End-of-Year Surveys) and the same from year to year. In the first year of SRP, only beginning- to end-of-year comparisons are possible. In later years, year-to-year comparisons can be made. Year-end to year-end comparisons are suggested. The following chart (see Figure 10) shows how to make comparisons for the first year of SRP and for later years. (The chart also provides a useful set of categories—reading program, staff, students, and SRP—for your evaluation report.)

SURVEY COMPARISONS

Using Standardized Student Reading Tests

As noted when discussing Metacognitive Interviews, you will be gathering data on the degree to which your students are becoming strategic readers as part of "business as usual" in your classrooms. In many cases, another part of business as usual is students taking standardized reading tests.

Students' performance on *some* of these tests can be of use in evaluating the influence of SRP on your students' reading abilities. Standardized reading tests are useful *if* the approach to reading that underlies the test is the interactive approach upon which SRP is based. Otherwise, the test does not assess what your staff is teaching your students about reading. Spend some time looking at your students' performance on tests that are not aligned with the SRP approach to reading. You'll find

---

[3] If some of your staff are taking part in SRP and some are not, the responses of the two groups on the individual surveys can be compared, as well as the changes in the two groups' responses between the two surveys.

FIGURE 10

Evaluation Focus	*Items*	*Comparison*
Year 1		
Reading Program	2-7	Beginning/End, item by item
Staff		Beginning/End, item by item
• Knowledge of reading strategies	8-12	
• Expertise in instructional strategies	18-12	
• Comfort with staff development activities	22-27	
Students		Beginning/End, Item by item
• Knowledge of reading strategies	13-17	
Previous staff development (Beginning-of-year survey only)	28-31	No direct comparison, but provides a benchmark against which SRP quality can be judged
SRP (End-of-year survey only)		No direct comparison, but can be judged in light of previous staff development (items 28-31 on the beginning-of-year survey)
• Quality	28-32	
• Influence on staff and students	33-35	
Year 2 and after		
Reading Program	2-7	Beginning/End, item by item End year to year, item by item
Staff		Beginning/End, item by item
• Knowledge of reading strategies	8-12	End year to year, item by item
• Expertise in instructional strategies	18-21	
• Comfort with staff development activities	22-27	
Students		Beginning/End, Item by item
• Knowledge of reading strategies	13-17	End year to year, item by item
SRP (End-of-year survey only)		End year to year, item by item
• Quality	28-32	Can also be judged in light of previous staff development (items 28-31 on the beginning-of-year survey)
• Influence on staff and students	33-35	

that becoming a more strategic reader often translates into better performance on such tests. To be of real use, your reading test should be based on the interactive approach. Some standardized reading tests based on the interactive approach also focus on reading strategies, and these are even better for assessing how strategically your students are reading. If you are unsure about the approach to reading that underlies your standardized reading tests, contact the company or agency that gives the test and question them. It also is a good idea to seek advice from student assessment experts.

The analysis of students' performance on a standardized reading test is based on year-to-year comparisons of students at the same grade levels. For instance, if your third graders take a reading test, you would compare third grade performances year by year for the year(s) before SRP and for each year of SRP. Depending on the test used, it might make sense to compare individual items or clusters of items in the same way. Again, it makes sense to seek advice from the company or agency that gives your test or student assessment experts about the kinds of analyses that are legitimate. Often they will also conduct or help with the analysis (sometimes for a fee).

The Portfolio Approach

The results of your SRP monitoring and evaluation activities will provide you with valuable input into your progress. These results will make up a portfolio which you can use to measure your progress, observe results, and note improvements. Each of the five assessment strategies discussed so far makes an important contribution to your portfolio.

Your portfolio doesn't stop here, though. It can be expanded, well beyond the information and evidence from these five straregies. As noted earlier, almost everything in your classrooms and school that has to do with reading is evidence about SRP and its influence on staff and students. Below are just a few of the possibilities.

SRP	Unit, year, and long-range plans; observation, modeling, and coaching schedules; yearly lists of workshops, conferences, courses, and school visits; board meeting minutes; parent inquiries about reading; newspaper articles
Reading Program	Curriculum revision/development plans; curriculum documents; letters to testing companies and textbook publishers; purchase orders for instructional materials and library books; copies of grant applications; hiring criteria related to reading
Staff	Lesson plan file; list of additions to professional development library; audio- and videotapes of classroom activities; written communications to parents; articles for professional journals and newspapers; handouts for presentation and workshops. Documents of all kinds generated through reading (not just in reading, but in other subjects where reading plays a role in learning as well); records of library use; audio- and videotapes (individually, in pairs, and in small groups)

Your approach to portfolio building can be "deductive" or "inductive." Using the deductive approach, you decide which kinds of information and evidence to include before the year begins. In the inductive approach, everyone collects what they think is important. The two approaches can be combined. You might also schedule a "mid-way" meeting at which staff share the kinds of information and evidence they have been collecting on their own and decide whether to add any of them to the official list. At the end of the year, the team collects, organizes, and interprets information and evidence. The result is your portfolio, a "text" written by the staff and students who participated in SRP, for use in planning the following year and telling the SRP story to parents, board members, your community, and other interested parties.

3 PART

Tool Kit

Getting Started Checklist

Forming a Project Team

	Project Team	*Participating Staff*	
Role	***Name***	***Name***	***Position***
Principal			
Reading Specialist			
Library-Media Specialist			
Teacher(s)			

Getting Started

Page 2

Assessing Reading Instruction and Staff Development

		Completed	Data Analyzed
Reading and Staff Development Programs Survey		______	______

Additional Assessment Activities

		Completed	Data Analyzed
Reading	1. ______________________	______	______
	2. ______________________	______	______
	3. ______________________	______	______
Staff Development	1. ______________________	______	______
	2. ______________________	______	______
	3. ______________________	______	______

Getting Started
Identifying Resources

Facilities Project Room/Space ____________________

Large room for group meetings ____________________

Equipment Television __________

VCR __________

Audio Cassette Recorder __________

Access to copier __________

Supplemental Equipment ____________________

____

____

____

Supplemental Reading Materials ____________________

____

____

Staff Development ____________________

____

____

Supplemental Funds $__________

Getting Started

Page 4

Informing Parents and Community Members

	Activities	Completed
Parents		
Community		
Parents and Community		

Getting Started

Considering SRP Options

Working with Other Schools Yes No

Partners ______________________
____

Focus of the Collaboration ______________________

____

Goals

1. ______________

2. ______________

Related Activities

____

____

Working with Outside Experts Yes No

Partners ______________________
____

Focus of the Collaboration ______________________

____

Goals

1. ______________

2. ______________

Related Activities

____

____

Collaborating through Telecommunications Yes No

Telecommunications Technologies
1. ______________________
2. ______________________

Focus of the Collaboration ______________________

____

Goals

1. ______________

2. ______________

Related Activities

____

____

TOOL KIT

Reading and Staff Development
Beginning-of-Year Survey — (First Year)

1. Are you participating in the Strategic Reading Project this year?

☐ Yes, it is my _____ year in the project. ☐ No, I am not participating this year.

Please rate the quality of the following components of your school's reading program.

		Low				*High*
2.	Curriculum	1	2	3	4	5
3.	Instruction	1	2	3	4	5
4.	Assessment	1	2	3	4	5
5.	Alignment of curriculum, instruction, and assessment	1	2	3	4	5
6.	Instructional materials					
	A. Basal series	1	2	3	4	5
	B. Literature and trade books	1	2	3	4	5
	C. Audio and video resources	1	2	3	4	5
	D. Computer software	1	2	3	4	5
	E. Library resources	1	2	3	4	5

---

7. Please list strengths and weaknesses in the reading program that are not covered in 1-6.

Strengths ______________________________

____

____

Weaknesses ______________________________

____

____

Reading and Staff Development
Beginning-of-Year Survey — (First Year) Page 2

Please indicate your level of knowledge for the following reading strategies.

		Do not know	*Low*				*High*
8.	Prior knowledge	0	1	2	3	4	5
9.	Inference	0	1	2	3	4	5
10.	Text structure analysis	0	1	2	3	4	5
11.	Word meaning	0	1	2	3	4	5
12.	Metacognition	0	1	2	3	4	5

Please indicate your *students'* levels of knowledge for the following reading strategies.

		Do not know	*Low*				*High*
13.	Prior knowledge	0	1	2	3	4	5
14.	Inference	0	1	2	3	4	5
15.	Text structure analysis	0	1	2	3	4	5
16.	Word meaning	0	1	2	3	4	5
17.	Metacognition	0	1	2	3	4	5

Please indicate your level of expertise for the following instructional strategies.

		Do not know	*Low*				*High*
18.	Direct instruction	0	1	2	3	4	5
19.	Guided practice	0	1	2	3	4	5
20.	Modeling	0	1	2	3	4	5
21.	Coaching	0	1	2	3	4	5

TOOL KIT

Reading and Staff Development
Beginning-of-Year Survey — (First Year)

Page 3

Please indicate your level of comfort with the following staff development activities.

	Do not know	*Low*				*High*
22. Leading a discussion of successful instructional practices	0	1	2	3	4	5
23. Leading a discussion of research on instruction	0	1	2	3	4	5
24. Observing your colleagues' instruction	0	1	2	3	4	5
25. Having colleagues observe your instruction	0	1	2	3	4	5
26. Modeling instructional strategies for your colleagues	0	1	2	3	4	5
27. Coaching your colleagues' use of instructional strategies	0	1	2	3	4	5

Please rate the quality of the following components of your school's staff development program during the previous two years.

	Low				*High*
28. Curriculum	1	2	3	4	5
29. Activities	1	2	3	4	5
30. Resources	1	2	3	4	5
A. Staff developers	1	2	3	4	5
B. Materials	1	2	3	4	5
C. Financial resources	1	2	3	4	5

---

31. Please list additional strengths and weaknesses in the staff development program that are not covered in 28-30.

Strengths ______________________________

____

Weaknesses ______________________________

____

Reading and Staff Development
Beginning-of-Year Survey (Year 2 and Later Years)

1. Are you participating in the Strategic Reading Project this year?

☐ Yes, it is my _____ year in the project. ☐ No, I am not participating this year.

TOOL KIT

Please rate the quality of the following components of your school's reading program.

	Low				High
2. Curriculum	1	2	3	4	5
3. Instruction	1	2	3	4	5
4. Assessment	1	2	3	4	5
5. Alignment of curriculum, instruction, and assessment	1	2	3	4	5
6. Instructional materials	1	2	3	4	5
a. Basal series	1	2	3	4	5
b. Literature and trade books	1	2	3	4	5
c. Audio and video resources	1	2	3	4	5
d. Computer software	1	2	3	4	5
e. Library resources	1	2	3	4	5

7. Please list the strengths and weaknesses in the reading program that are not covered in 1-6.

Strengths ____

____

Weaknesses ____

____

Reading and Staff Development • Page 2
Survey Beginning-of-Year Survey **(Year 2 and Later Years)**

Please indicate your level of knowledge for the following reading strategies.

		Do not know	Low				High
8.	Prior knowledge	0	1	2	3	4	5
9.	Inference	0	1	2	3	4	5
10.	Text structure analysis	0	1	2	3	4	5
11.	Word meaning	0	1	2	3	4	5
12.	Metacognition	0	1	2	3	4	5

Please indicate your *students'* level of knowledge for the following reading strategies.

		Do not know	Low				High
13.	Prior knowledge	0	1	2	3	4	5
14.	Inference	0	1	2	3	4	5
15.	Text structure analysis	0	1	2	3	4	5
16.	Word meaning	0	1	2	3	4	5
17.	Metacognition	0	1	2	3	4	5

Please indicate your level of expertise for the following instructional strategies.

		Do not know	Low				High
18.	Direct instruction	0	1	2	3	4	5
19.	Guided practice	0	1	2	3	4	5
20.	Modeling	0	1	2	3	4	5
21.	Coaching	0	1	2	3	4	5

Reading and Staff Development • Page 3

Beginning-of-Year Survey (Year 2 and Later Years)

Please indicate your level of comfort with the following staff development activities.

		Never Done	Low				High
22.	Leading a discussion of successful instructional practices	0	1	2	3	4	5
23.	Leading a discussion of research on instruction	0	1	2	3	4	5
24.	Observing your colleagues' instruction	0	1	2	3	4	5
25.	Having colleagues observe your instruction	0	1	2	3	4	5
26.	Modeling instructional strategies for your colleagues	0	1	2	3	4	5
27.	Coaching your colleagues' use of instructional strategies	0	1	2	3	4	5

Reading and Staff Development End-of-Year Survey

1. Are you participating in the Strategic Reading Project this year?

☐ Yes, it is my _____ year in the project. ☐ No, I am not participating this year.

Please rate the quality of the following components of your school's reading program.

	Low				High
2. Curriculum	1	2	3	4	5
3. Instruction	1	2	3	4	5
4. Assessment	1	2	3	4	5
5. Alignment of curriculum, instruction, and assessment	1	2	3	4	5
6. Instructional materials	1	2	3	4	5
a. Basal series	1	2	3	4	5
b. Literature and trade books	1	2	3	4	5
c. Audio and video resources	1	2	3	4	5
d. Computer software	1	2	3	4	5
e. Library resources	1	2	3	4	5

---

7. Please list the strengths and weaknesses in the reading program that are not covered in 1-6.

Strengths ____

____

Weaknesses ____

____

Reading and Staff Development End-of-Year Survey

Page 2

Please indicate your level of knowledge for the following reading strategies.

		Do not know	Low				High
8.	Prior knowledge	0	1	2	3	4	5
9.	Inference	0	1	2	3	4	5
10.	Text structure analysis	0	1	2	3	4	5
11.	Word meaning	0	1	2	3	4	5
12.	Metacognition	0	1	2	3	4	5

Please indicate your *students'* level of knowledge for the following reading strategies.

		Do not know	Low				High
13.	Prior knowledge	0	1	2	3	4	5
14.	Inference	0	1	2	3	4	5
15.	Text structure analysis	0	1	2	3	4	5
16.	Word meaning	0	1	2	3	4	5
17.	Metacognition	0	1	2	3	4	5

Please indicate your level of expertise for the following instructional strategies.

		Do not know	Low				High
18.	Direct instruction	0	1	2	3	4	5
19.	Guided practice	0	1	2	3	4	5
20.	Modeling	0	1	2	3	4	5
21.	Coaching	0	1	2	3	4	5

Reading and Staff Development
End-of-Year Survey

Page 3

Please indicate your level of comfort with the following staff development activities.

		Never Done	Low				High
22.	Leading a discussion of successful instructional practices	0	1	2	3	4	5
23.	Leading a discussion of research on instruction	0	1	2	3	4	5
24.	Observing your colleagues' instruction	0	1	2	3	4	5
25.	Having colleagues observe your instruction	0	1	2	3	4	5
26.	Modeling instructional strategies for your colleagues	0	1	2	3	4	5
27.	Coaching your colleagues' use of instructional strategies	0	1	2	3	4	5

Please rate the quality of the following components of the Strategic Reading Project *this year.*

		Low				High
28.	1st unit ____________________	1	2	3	4	5
29.	2nd unit ____________________	1	2	3	4	5
30.	3rd unit ____________________	1	2	3	4	5
31.	Activities for:					
	a. Building a Knowledge Base	1	2	3	4	5
	b. Observing Models and Examples	1	2	3	4	5
	c. Reflecting on Your Practice	1	2	3	4	5
	d. Changing Your Practice	1	2	3	4	5
	e. Gaining Expertise	1	2	3	4	5

Reading and Staff Development
End-of-Year Survey

32. Please list additional strengths and weaknesses in the Strategic Reading Project that are not covered in 28-31.

Strengths ____________________

____

Weaknesses ____________________

____

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
33. My participation in the Strategic Reading Project this year has increased my knowledge of strategic reading and teaching.	1	2	3	4
34. My participation in the Strategic Reading Project this year has improved how I teach reading.	1	2	3	4
35. My students have become more strategic readers because I participated in the Strategic Reading Project this year.	1	2	3	4

TOOL KIT

Year Planning Framework

Project Team ______________________________

Participants ______________________________

Objectives

Staff: ______________________________

Students: ______________________________

School: ______________________________

Community: ______________________________

Year Planning Framework

Page 2

Units		What	When	Coordinator(s)
Units	1.			
	2.			
	3.			
Events				
Kick-Off				
Mid-Year				
Wrap-Up				
Others				
Supplemental SRP Activities				
	1.			
	2.			
	3.			
	4.			

Year Planning Framework

Page 3

Parent and Community Activities

	What	When	Coordinator(s)
1.	________________	__________	______________
2.	________________	__________	______________
3.	________________	__________	______________
4.	________________	__________	______________

Summer Activities

1.	Analysis of Evaluation Data	__________	______________
2.	Planning for Next Year	__________	______________
3.	Staff Development	__________	______________
	________________	__________	______________
	________________	__________	______________
	________________	__________	______________
	________________	__________	______________

YEAR TIME LINE	Units	Events	Sup. Staff Development	Parent Community	Summer
August					
September					
October					
November					
December					
January					
February					
March					
April					
May					
June					
July					
August					

TOOL KIT

Unit Planning Framework

Unit ______________________ Coordinators ______________________

Time Span ______________________

Building a Knowledge Base (2 weeks)

Coordinator(s) ______________________ Time Span ______________________

Activities	Time Span	Location	Materials	Equipment
1.			Unit Essay	
2.			Selected Readings:	
3.				
4.				

Observing Models and Examples (1 week)

Coordinator(s) ________________ Time Span ________________

Activities	Time Span	Location	Materials	Equipment
1.			Unit audiotape	
2.				
3.				
4.				

Reflecting on Your Practice (1 week)

Coordinator(s) ________________ Time Span ________________

Activities	Time Span	Location	Materials	Equipment
1.				
2.				
3.				
4.				

Changing Your Practice (2 weeks)

Coordinator(s) ____________________ Time Span ____________________

Activities	Time Span	Location	Materials	Equipment
1.				
2.				
3.				
4.				

Gaining Expertise (2 weeks)

Coordinator(s) ____________________ Time Span ____________________

Activities	Time Span	Location	Materials	Equipment
1.				
2.				
3.				
4.				

Step 1: Priority Setting

One of the easier ways to collect and analyze information on staff development priorities is to conduct a survey. The following format ties staff development priorities directly to areas in which schools can improve student learning and gives examples of such areas. This tie helps to link your long-range staff development plan to your students' educational well-being.

There are four points to keep in mind when developing and conducting the survey and analyzing the survey data.

1. The survey is only as good as the areas for improvement listed on it. Thus, it is important to solicit suggestions for areas to include during the development process. However, too long a survey often leads to low return rates and less reliable information.

2. A decision must be made about who will receive the survey. The format is set up for three groups: staff members, parents of students, and community members. You might want to distribute the survey to your students, but not to community members. If your community is large, the distribution, return, and analysis costs in time and dollars can grow quite large. You might decide to survey a sample of the community, but sampling can raise sticky questions about how representative the sample is, raising problems about the meaning of your data.

3. When analyzing the data, it is always useful to look at the distributions of responses as well as at the average. Two items can have the same mean and very different distributions. For instance, suppose the average rating for the 40 staff members who responded to item 1 (Reading abilities) and 2 (Citizenship) is 2.5 (see the *Survey of Staff Development Priorities*, p. 2 of module). The distribution of their responses for the two items could be:

Rating ***Item***	1 *(Low)*	2	3	4 *(High)*
Reading abilities	0	20	20	0
Citizenship	20	0	0	20

   The responses to the first item show some agreement on the rating while those responses to item 2 show two camps on the rating. In this example it might make sense to focus on the improvement of reading abilities because there is more consensus to build on.

4. When you make public your analysis of the survey data, track the response in your school and community. The response is more information for developing your long-range plan.

TOOL KIT

LONG-RANGE PLANNING MODULE • Page 2

Format for a Survey of Staff Development Priorities

The information from this survey will help your school develop a long-range plan for staff development. Thank you for taking the time to complete it.

Please check only one:

- ☐ I am a staff member.
- ☐ I am a parent of a student in your school.
- ☐ I am a community member.

Rate how important it is for your school to help students make improvements in the following areas.

	Low------------	------------	------------	------------High
1. Reading abilities	1	2	3	4
2. Citizenship	1	2	3	4
3. Critical thinking	1	2	3	4
4. Writing abilities	1	2	3	4
5. Attitudes about learning	1	2	3	4
6. Discipline	1	2	3	4
7. Technology literacy	1	2	3	4
.				
.				
.				
Other				
____________________	1	2	3	4
____________________	1	2	3	4

If you gave a 4 rating to *more than 2* of the areas, write your two highest priorities below.

____

____

Step 2: Context Scanning

The feasibility of a long-range plan for staff development on the priorities identified by the survey depends on features of your school's context, how it presently is and how it will be over the next two or three years. These features can be divided into three groups: opportunities, challenges, and resources. For instance, your district might share one of your priorities or have a different set entirely. A shared priority is an opportunity that could be connected to additional resources. The lack of a shared priority is likely to be a challenge. On page 4 of this module is a matrix for scanning your school's contexts.

Context Scanning Matrix (see following page)

There are no simple and certain ways to collect information and use it to determine ratings and your reasons for your rating. One strategy worth trying proceeds in the following manner:

1. The team assigns ratings (↑, ↓, —, or ?) and notes reasons for them based on its collective knowledge.
2. The team sets a time period for collecting more information and develops a list of sources to be pursued during the period.
3. The information collection activities take place.
4. The team meets again to share new information and revisit their ratings and reasons.

The highest-rated priority (or priorities) becomes the focus of the long-range staff development plan.

Step 3: Develop a Long-Range Staff Development Plan

The team uses the Long-Range Planning Framework on page 5 of this module to develop a long-range staff development plan.

Context Scanning Matrix

Ratings: ↑ = Positive ↓ = Negative – = Neutral ? = Undetermined

Priorities Contexts	1: Rating/Reasons	2: Rating/Reasons	3: Rating/Reasons	4: Rating/Reasons
School District				
State Education System				
Parents				
Community Members				
Private Sector				
Public Sector				
Overall Rating/ Reasons				

Long-Range Planning Framework

Priority ______________________________

Goals
1. ______________________________
2. ______________________________
3. ______________________________

Opportunities to Seize ______________________________

____

____

Challenges to Meet ______________________________

____

____

Resources available/in short supply ______________________________

____

____

Staff Development Approach ______________________________

____

Year 1 ______________________________

____

Year 2 ______________________________

____

Year 3 ______________________________

____

SRP Activity Assessment Form

Activity: ______________________________

Please rate the following characteristics of the activity (1 low — 4 high).

		Low------	------	------	------High
1.	Convenience	1	2	3	4
2.	Amount learned	1	2	3	4
3.	Usefulness	1	2	3	4
4.	Overall quality	1	2	3	4

Strengths ______________________________

____

Suggestions for Improvement ______________________________

____

Lesson and Lesson Plan Checklist

STRATEGY	1.	2.
When used? (before/during/after reading) **Appropriate?** (Yes/No/?)		
How used? (direct instruction/ guided practice/ independent practice) **Appropriate?** (Yes/No/?)		
Texts used? **Appropriate?** (Yes/No/?)		
Description of instruction **Appropriate?** (Yes/No/?)		

Lesson and Lesson Plan Checklist Page 2

Strengths ______________________________

____

Suggested Improvements ______________________________

____

	Unsuccessful			Successful
Overall Rating	1	2	3	4

Metacognitive Interview Form

for Younger Students

Select a reading passage that the student is able to read without difficulty. (The passage selected is likely to vary from student to student.)

Explain to the student that you want him or her to show you how to read the passage.

Questions

1. What should I do first? Should I do anything before I start to read? Show me how to do that.

2. What should I do while I am reading? Show me how to do that.

3. What should I do if I am having trouble understanding what I am reading? Show me how to do that.

4. What should I do when I finish reading?

5. Do I need to do anything else to really understand what I read?

TOOL KIT

Metacognitive Interview Form

for Older Students

Explain that the purpose of the interview is to understand better how the student views reading and how s/he reads so that you can teach reading better.

Questions

1. What is reading in your view? How would you define reading?

2. What is good reading?

3. Do you use strategies when you read? (If NO, ask the student to describe what s/he does when reading and then stop. If yes, go to the next question.)

4. What strategies do you use? How do you use them?

5. Which strategies are your best reading strategies?

6. Which strategies do you find the most difficult to use? Why?

7. What else can you tell me that will help me understand how you view reading and how you read?

4 PART

Strategic Reading and Teaching Units

1 UNIT

Strategic Reading and Teaching: An Introduction

Unit Overview

Contents:

A. Suggestions for Staff Development Activities

B. Unit Essay

Focus —Introduces Strategic Reading in an everyday situation

1. What is the Interactive Definition of Reading?
2. How Do I Teach Students to Become Strategic Readers?
3. How Do I Plan and Implement Strategic Reading Instruction in My Classroom?

Reflections — Answers questions you may have about how to integrate strategic reading into your classroom

C. Annotated Bibliography

UNIT OVERVIEW

In this first unit of the Strategic Reading Project, we introduce you and your school to the interactive model of reading and to a repertoire of research-based strategies to improve your students' reading achievement. SRP contains six units of staff development for your school: an Overview unit on Strategic Reading and Teaching and five units on specific reading strategies: 1. Prior Knowledge, 2. Inferencing, 3. Text Structure, 4. Word Meaning, and 5. Metacognition. The basic purpose of SRP is to help you assess your present practice in light of recent research on reading.

Unit 1, *Strategic Reading and Teaching: An Introduction*, answers three basic questions:

1. What is the interactive definition of reading?
2. How do I teach students to become strategic readers?
3. How do I plan and implement strategic reading instruction in my classroom?

Suggestions for Staff Development Activities

The Strategic Reading Project is a long-term, school-based staff development program with five phases in each unit.

In Phase 1, *Building a Knowledge Base*, you and your colleagues begin to read about and understand how recent research is changing traditional reading instruction.

In Phase 2, *Observing Models and Examples*, you see and hear examples of strategic reading and instruction. These examples will help you clarify and elaborate what you are learning about the interactive definition of reading.

In Phase 3, *Reflecting on Your Practice*, you begin to develop an individual plan for changing your current practice, using what you have read and your analysis of examples.

In Phase 4, *Changing Your Practice*, you carry out your plan for change and evaluate how well it is working for you and your students.

In Phase 5, *Gaining Expertise*, you and your colleagues focus on institutionalizing what you have learned about strategic reading, both in your own classrooms and throughout your school.

Phase 1: Building a Knowledge Base

Read the Unit 1 Essay.
Consult the Annotated Bibliography and select one or two articles to read.

Discuss the reading with other teachers.

Before you read...

- Write your definition of effective reading. Consider what makes someone a good reader and why. What skills or strategies are necessary for effective reading? Think about and write down what you think the interactive definition of reading is.
- Think about and discuss how your reading instruction reflects your definition of effective reading.
- Write any questions you have about the interactive definition of reading and reading instruction that you expect this unit to answer.

After you read...

- Compare what you read about the interactive definition of reading to the definitions you wrote before reading and to your current reading instruction.
- Consider whether your questions were answered, what questions still need to be answered, and what new questions you have.

Phase 2: Observing Models and Examples

Listen to SRP audiotapes for Unit 1. Discuss them with your colleagues. Sit in on a classroom demonstration (or watch a video) of strategic reading instruction. Discuss the questions below with colleagues.

- How do the examples clarify and elaborate what you learned about reading and reading instruction?
- How does what you learned help you understand the examples?
- How can you apply the ideas in the examples in your classroom? What problems do you anticipate in trying to apply them?
- How do the examples help you address problems you foresee in applying what you have learned?
- How do your instructional materials (e.g., basals, trade books) enable you to apply what you have learned? What problems do they present?

Phase 3: Reflecting on Your Practice

- Brainstorm what you would like to change about your reading instruction. If possible, share your list with a colleague.
- Set goals for change by prioritizing your list according to importance.
- Select three to five things you want to change right away. You may want to start with small changes (for example, *before-reading instruction*), or you may want to start with larger chunks (for example, *unit planning*).
- Plan ways to involve your colleagues and your students in making these changes.

Phase 4: Changing Your Practice

- Plan ways for colleagues to coach your instruction by inviting your reading specialist or another teacher to observe your classroom. Identify three or four things you want the observer to pay attention to.
- Coach yourself by recording one of your reading lessons and analyzing how well it reflects your goals for change.
- Ask a colleague to critique your lesson plans.
- Talk about your successes, temporary setbacks, and problems with colleagues.
- Conduct discussions with your students on the new ways you are teaching reading.

Phase 5: Gaining Expertise

To strengthen your practice...

- Continue self-reflection, reading, observing examples, and getting feedback from colleagues and students on what you are doing well and what is still a problem.

To share your ideas with others...

- Plan inservices or presentations for other educators, parents, and community people to demonstrate the interactive defintion of reading and strategic reading instruction. These inservices can be held in your local school, in your district, at a professional conference, or at an educational convention. In addition to traditional presentations, you might consider making videotapes and audiotapes, creating and sharing lesson and unit plans, participating in video conferences, writing tips for teachers or parents, and so on.

ESSAY

Preschoolers, before they actually learn to read, respect and admire the "mysteries" of reading. Through modeling — older children or adults reading to them — they learn early on that the numerous printed symbols on a page hold a unique message for those who know how to read. As a result of this modeling, young children practice or "mirror" the activity of reading, assigning their own meanings to words, sentences, paragraphs, and pages, and using their knowledge and robust imaginations as the bases for reading their books.

When asked about the meaning of a book they are "reading," these youngsters are not at a loss with a sensible response. With an air of confidence, they construct meaning all by themselves, often looking at pictures, remembering what someone said to them about the book or read to them from the book, and then simply weaving their fragile yarn from those bits of knowledge. Often, a child in this situation will even tailor the "story" to the circumstances, changing and adapting the meaning as it suits his or her purposes. Without any formal instruction in reading, children are able to make the connection between whatever information, real or made up, is available and what they already know.

Consider the following in which a child uses illustrations, information that she remembers from previous readings by others, and her experiences to tell the story of Little Red Riding Hood.

> During reading time in a Head Start class, the children were given the opportunity to select their favorite book to "read." Maria selected "Little Red Riding Hood." She read the story aloud like so.
>
>> (points to picture)
>>
>> There was this little girl and her name was Little Red Riding Hood because she always wears a red coat and a big red hat on her head. She is the same size as my sister.
>>
>> (turns page)
>>
>> She had a grandma who lived on the other side of the park. Her grandma is sick so her mommy made Na-Na some chocolate chip cookies and told her to take them to Na-Na's house. Little Red Riding Hood knows that the shortest way to Na-Na's house is through the park. But her mommy says that she shouldn't go through the park herself 'cause bad people hang out there. I saw some bad people on TV; they hurt people and take their money.
>>
>> (turns to next page and looks at picture)
>>
>> But Little Red Riding Hood did not listen to mommy and she went through the park anyway. There was this big ugly wolf waiting to hurt her and gobble up her cookies. Then the wolf ate the grandma, and she was mad. Then daddy came and saved Little Red Riding Hood from the wolf.

When compared to the real text, Maria's story is out of sequence and has different details. Yet, what Maria did in this example is probably closer to real reading than most of what traditional instruction will later teach her about the reading process. Traditional reading instruction will teach her to search through texts, hunting for the author's meaning and often overlooking her own knowledge and experience. She will be asked to repeat what the text says to show understanding or comprehension. Eventually, her reading achievement will be measured by how she answers standardized test questions that ask for detail-level responses to literal questions.

By fourth grade, many students like Maria will begin to experience reading failures because they do not understand their own roles in making meaning from text. These youngsters, when asked to explain what good reading is, offer such answers as "saying words correctly," "reading out loud with no mistakes," "explaining what the author meant," or "giving the right answer."

What is the Interactive Definition of Reading?

The Traditional Approach to Reading

In traditional reading instruction, students are taught early to recognize and decode printed symbols and then to accurately interpret the meaning intended by the author of these symbols. Having mastered these word recognition skills, students often spend much of their comprehension time hunting for the word or sentence that specifically answers their teacher's or the textbook's questions. In addition, students are usually taught a multitude of discrete skills to use when hunting for the author's meaning in the text. Students learn that skills such as *locating information, determining the main idea, ascertaining sequence,* and *identifying cause and effect* can help them find the author's meaning. These skills are further divided into subskills, such as *skimming and scanning,* and *using the dictionary and table of contents.*

While these are all important skills in reading, they are often taught in isolation from authentic text, and students are rarely taught how and when to use them. Instead, texts such as basal readers and worksheets with constructed (i.e., "made up") paragraphs are used to help students learn and apply a discrete skill. Consequently, students learn that reading is an isolated and fragmented process of learning a word or skill and then practicing it in highly structured situations.

Challenges From Research

Recent research, however, shows that traditional reading instruction is based on two alternative conceptions. The first is that reading is finding the author's meaning in text. The second is that the reading process is made up of discrete skills for finding the meaning. Instead, we now know that fluent readers, much like Maria the preschooler, interact with text to construct meaning, strategically linking what they know to information in the text. In fact, recent research has led to a redefinition of the reading process.

The redefinition of reading began in the early 1970s as researchers developed and applied new investigative techniques to the reading process. The techniques enabled them to study the mind's roles in reading and the factors that influence those roles. Since then, literally thousands of researchers have conducted thousands of experiments on how the human brain organizes and structures information. These researchers demonstrated that readers use their pre-existing knowledge to construct meaning beyond what the text says. Moreover, there has been extensive documentation of the wide number and variety of strategies that effective readers use to facilitate their comprehension of text.

What We Know About Reading From Research

1. Reading is a process of *constructing meaning* in which the reader connects information in the text to what he or she knows.
2. To construct meaning, the reader *actively interacts* with the text and the context (including the task or purpose of reading).
3. The reader uses a *repertoire of strategies* to understand the information in the text and to connect it to what he or she knows.
4. The reader *is aware* of his or her repertoire of strategies and is in control of how he or she uses those strategies to construct meaning.

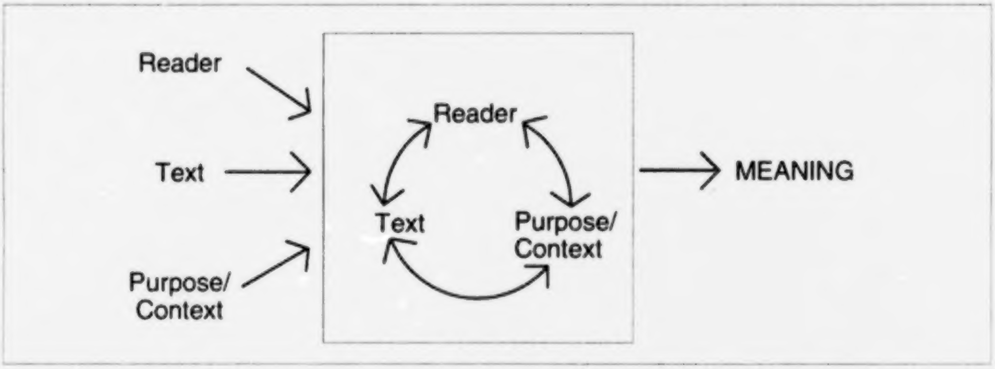
5. The reader uses these strategies not only *during*, but *before* and *after* reading the text.
6. While using the strategies, the reader *stops to reflect* on what has been read, *thinks ahead* to what will be read, and *knows when to resume* reading.

In summary, when we say reading is an interactive process, we mean that the reader actively and purposefully constructs meaning from text, connects that meaning to his or her own knowledge and experience, and uses a repertoire of flexible, non-discrete, and holistic strategies as he or she reads. Like Maria, effective readers use what they know and already understand to make sense of what they read.

Reading is an Interactive Process

To read for comprehension means that readers must actively interact with the texts they read. This is not a passive, random, and undirected process. Instead, readers must learn to orchestrate and control what they do and how they think as they read. They also must learn to adjust this process to their purpose for reading. For example, reading for pleasure is very different from reading for information. Also, reading a text about something we know a great deal about is different than reading about something unfamiliar. In each instance, however, the purpose of reading is understanding or comprehension. Indeed, whenever we read three factors are important: 1) what the text is and how it is organized; 2) the task or purpose we have for reading; and 3) our knowledge and experience with the subject of the text. Our prior knowledge and experiences are always interacting with the characteristics of the text and purpose for reading to help us construct meaning (see Figure 1).

FIGURE 1



The Role of the Reader

Looking "inside" the reading process, four primary reader characteristics play roles in the interaction: 1) purposes and goals; 2) knowledge and experience; 3) use of reading strategies; and 4) feelings and attitudes about reading. Although the basic purpose for reading is to obtain and make sense of the information in the text, readers also have more specific goals and purposes which affect the reading process. We know that a student who is reading a biography of Abraham Lincoln for pleasure will read it differently than another who is required to read it for a course on the Civil War. We also know that a reader's knowledge and experience affect the reading process as well. For instance, before reading a biography of Lincoln, a student who knows a great deal about

Abraham Lincoln will connect that knowledge to the information in the biography more easily than a student who has limited knowledge about Lincoln. Similarly, a student who knows and uses reading strategies will make better connections between his or her knowledge of Lincoln and the information about him in the text than will a student who does not use reading strategies. Finally, a student's attitudes and feelings about being a reader, reading, and the topic to be read affect the reading process. For instance, a student who likes to read and is excited about learning more about the Civil War is likely to put more effort into reading about this subject than a student for whom reading is a chore and for whom the topic is uninteresting.

The Characteristics of Text

Text and its structure are also important factors in the reading process. At least four elements affect how readers will interact with text: (1) the genre or types of text; (2) text structure; (3) the information load; and (4) presentation.

Types of Text

In the typical classroom, students will generally encounter two basic types of texts: narrative and expository. At times, the two types may overlap. That is, the text may be written in narrative form, but its content may be expository. Narrative text usually deals with storytelling; stories may be fictional or nonfictional. Components of a narrative text generally follow a pattern or story grammar that includes characters, setting, problems, a conclusion, and a theme. In contrast, expository text primarily deals with facts and information, features found in content area subjects such as science, social studies, and history, as well as in newspapers and magazines or other informational publications.

Text Structure

The text structure is the manner in which information is organized or structured. Unlike narrative text, which has one particular story pattern or structure, expository text has several. These include cause and effect, compare and contrast, problem and solution, and question and answer. The degree to which a reader is able to understand and mentally internalize the information in expository text depends on which structure is used, the level of difficulty, and the reader's prior knowledge. Expository text is usually more difficult for students because structures vary and students cannot, as in narrative text, easily determine how to use the organization of the text to obtain the information they are seeking. Moreover, students are usually more familiar with story or narrative text structures.

Information Load

The information load, or how many facts a text contains, is another element of text and affects how the reader interacts with it. For example, a biography of Lincoln is likely to contain a great deal of detailed information about Lincoln's life as a young boy, his education, his career as a lawyer, his rise to political power, the debates with Stephen A. Douglas, and his Presidency, including the Civil War. If the text also includes details about Mrs. Lincoln, their children, and John Wilkes Booth, and if it covers the Civil War battle by battle, then the information load may be too cumbersome and difficult for a typical elementary school student to absorb and comprehend. However, an experienced reader may find the information load comfortable and, perhaps, entertaining.

Text Presentation

Presentation refers to the quality of text, and deals with elements such as the size of the print, the existence of chapters and subheadings, the use of highlighted or italicized information, the inclusion of charts, graphs, diagrams, and illustrations, and the explicitness or implicitness of the information presented. These elements help readers to understand how the author is organizing information and ideas in the text.

The Purpose or Context

Why someone is reading and the context in which they are reading contribute significantly to the interaction between the reader and the text. Both the task and the reading environment are, therefore, important features of the reading context.

Task

The task is closely related to the purpose or the reason for reading. Is it recreational reading or is it required reading? For example, an adult, who is a "history buff" will read the biography of Lincoln for the pure pleasure of adding to his or her knowledge, whereas a student reading it as part of a course requirement probably has an entirely different reason—that of gaining specific information for a specific purpose. In the case of the student, the teacher establishes the task: reading the biography of Lincoln. The purpose is to learn facts and other important information for a history class. For some students, however, reading historical material may have a dual purpose. Like adults, they may be reading for enjoyment as well as to fulfill school tasks. Task, or purpose for reading, also helps determine how readers demonstrate accomplishment. Those reading for individual enjoyment and personal knowledge might simply share interesting, unusual, or little-known facts about Lincoln with friends or colleagues. Students, however, might be required to take an oral or written examination to indicate comprehension of the text.

The Reading Environment

Environment includes the setting or the place where reading is taking place. Usually this environment is directly related to the reader's purpose or task. Recreational reading may take place at home, in bed, sitting in a comfortable chair, or riding on a bus or train. In contrast, school-oriented reading is usually done in a study hall, a classroom, the library, or some other place conducive to studying. The mood, tone, and atmosphere are a particularly important part of a classroom environment. If the mood and tone are non-threatening, the students feel free to take risks, to explore, to question, and to make mistakes. Optimum reading environments also provide students with a sense of efficacy. They can take control of assigned tasks, monitoring *how* they read and understand, as well as *what* they learn. In this environment, students feel secure, academically able, and empowered.

Reading is a Strategic Process

Reading is interactive, but it is also strategic. What does it mean to be strategic about reading? To be strategic means to use strategies, or self-conscious plans, to construct meaning and, therefore, comprehend text. A strategy is a plan or a "blueprint" that effective readers are able to initiate, apply, adapt, and utilize when they read. As important as knowing what strategies to use, is knowing when and how to use them. When readers have control of these processes, they are strategic.

In using the strategic process, the reader applies holistic methods, drawing upon his or her prior knowledge, past and present experiences, and reasoning abilities. The reader also monitors what is going on during the reading process, as well as controls what is happening. In other words, the reader decides the *what, where, why,* and *how* of the reading process. Although some students seem to learn strategies on their own, all students can use them if they are taught.

Good readers have a repertoire of strategies that they select and adapt to their purposes and the texts they read. They also use fix-up strategies when they have problems comprehending. These strategies are manifestations of cognitive or learning processes. Thus, a lot of strategic behavior goes on inside their minds, not on a piece of paper. Yet, we know that in traditional instruction, students often learn to answer literal questions about a text using paper and pencil. When students are taught to apply strategies to a text, however, they learn to think, constructing meaning as they go.

Strategies in SRP

In the Strategic Reading Project, teachers study and learn to teach their students how to use specific reading strategies. These strategies are important for all students, but they are particularly important to teach low-achieving students, who often do not employ effective means to interact with textual materials. Units 2 through 6 cover the following strategies: prior knowledge, inferencing, text structure, word meaning, and metacognition.

Prior knowledge is thinking about what you know to help you understand what you are reading. This strategy accepts and values what students already know and their own experiences, particularly their culture.

Inferencing depends on prior knowledge and is essentially using what you know to "fill in blanks" or missing information in what you read. Students are often frustrated if a text has incomplete information or ideas. Teaching them to make inferences helps them fill in the gaps.

Text structure helps students understand how different types of text are organized. This knowledge of text structure provides students with a mental frame (or outline) for categorizing and processing what they read, particularly when it is new knowledge.

Word meaning is a special case of prior knowledge in which readers use what they know to figure out unfamiliar words and learn new concepts.

Metacognition is thinking about your own thinking in order to regulate learning and to overcome temporary setbacks in understanding. Metacognitive readers control how they interact with text, planning for and monitoring their use of strategies throughout the reading process.

Strategy use in Reading

Students' use of strategies is neither automatic nor procedural. And when they practice using these strategies, they do not use a rote set of steps to help them do it "right." Instead, students learn to use the strategies recursively in phases in a stop-start fashion *before, during,* and *after* reading.

Before they actually begin to read, effective readers engage in a variety of preparation processes. They set goals and purposes for reading. They preview the text to predict what they will learn and to speculate on how the text is structured. They activate their prior knowledge and begin a thinking process that will be sustained throughout reading. In contrast, poor readers often just start on page 1 and read until they finish or give up.

During reading, good readers attend actively to new content and ideas. This is not a passive phase in which readers merely take in information. Good readers check predictions, compare new information to what they already know and what they previously read, organize information, and ask questions as they continue reading.

After reading, mature readers summarize and integrate information, assess their own learning, reflect on and apply what they have learned, and plan for new learning.

Throughout every phase, good readers mentally stop and start again. This reflection, changing plans, looking ahead, and checking predictions are all examples of stop-start processes.

These recursive processes make strategic readers very different from readers who rely on skills alone to read and comprehend text.

Strategies vs. Skills

What is the difference between strategies and skills? In traditional reading instruction, students often learn skills such as *finding the main idea.* However, being strategic is very different from being skilled. Skills are operations, generally learned through repetition and practice and usually reinforced with drill sheets and workbooks. For example, skills such as *distinguishing a prefix from a suffix,* and *differentiating between a fact and an opinion,* are commonly taught in classroom reading lessons. Typically, in these skills lessons, students are asked to demonstrate their knowledge of the skill rather than their understanding of the text.

For example, given the task of *differentiating between a fact and an opinion*: "I think the United States is the richest country in the world," students typically look for certain clues or signal words or phrases, such as "I *believe, think,* or *feel,*" or descriptive words such as *prettiest, tallest, smartest, richest,* and mark the statement on their paper "F" (fact) or "O" (opinion) accordingly. Through skill drill and practice, they have been taught *what* to look for, but often not *why* or *how.* Thus, their comprehension is limited to word-level knowledge and, therefore, is not focused on the full text. In contrast, when students are strategic, they use their prior knowledge and reasoning. They ask questions, such as: *Could this statement be proven and if so, how? What have I read, heard, or seen that leads me to think this statement is not true?*

Being strategic is knowing when to use a skill, when not to use it, and why it is important to the reading task. Effective readers have a repertoire of strategies that they select and adapt to their purposes and to the texts they encounter. They also use fix-up strategies when they have problems comprehending. Furthermore, strategic reading is like problem solving and decision making; it is a process rather than an achievement and it is learned, not practiced. Because readers control their use of strategies, being strategic empowers students, increasing their feelings of self-worth and their academic motivation. As a result, strategic readers generally have good feelings about themselves and their abilities. Strategic readers also know they will experience comprehension difficulties, and even failure, at times, but are confident that they have the resources to overcome them. Strategic readers believe that with appropriate effort, they can master most reading tasks.

In summary, effective readers understand that reading is an interactive and strategic process. They construct meaning from texts by bringing their prior knowledge to bear throughout all phases of reading. Additionally, effective readers use strategies flexibly and selectively for the array of texts they encounter and the diverse purposes they have for reading. Finally, strategic readers know when and how to use skills, and why they are using them.

How Do I Teach Students to Become Strategic Readers?

What we now know about reading has implications for how we teach reading. Classrooms that teach students to be strategic readers will look different from traditional reading classrooms. As a reading teacher, you will probably find yourself reevaluating your instructional approaches; that is, how you select and use textbooks; how you organize your classroom and interact with students; and finally, how you sequence instruction and develop lesson plans.

Reevaluating Your Selection and Use of Textbooks

Traditional reading approaches have focused narrowly on nonauthentic texts; that is, isolated paragraphs and other small pieces of text that do not tell a complete story or convey a complete meaning. In a strategic learning environment, students should be immersed in real and meaningful texts. For the teacher, this will mean using texts in a different way. Instead of focusing instruction on insufficient texts, teachers should think about using whole stories or chapters. When forced to use traditional texts, such as basals, teachers may want to help students think through what the larger text may be about and what questions emerge because the text is so incomplete. For the most part, however, teachers may find themselves selecting totally different texts and using traditional texts in nontraditional ways.

Reevaluating How Your Classroom Is Organized

As a teacher, you know that your actions and talk have an enormous effect on what students do and believe about the reading process. Once they come to school, most students construct their understanding of what reading is all about largely from what goes on in classrooms. Thus, if they are given mostly traditional seatwork tasks, students may think of reading as a way to answer questions quickly rather than as a process for learning or enjoyment. If classroom tasks ask questions only about the details of text, students will find it difficult to focus on and construct meaning for the whole. And if you, as a teacher, assume sole authority in the classroom, students will assume a passive role in their own learning. Thus, we know that if students are to become active, independent thinkers and readers, you will need to become a model, coach, and collaborator with your students.

In a collaborative classroom environment, the teacher guides student learning and models the use of strategies for students. Reading instruction itself is therefore strategic, with the teacher drawing from a repertoire of instructional strategies, such as direct instruction, modeling, explaining, discussion, coaching, facilitating, and encouraging cooperation and collaboration among students. However, student learning is also strategic. Student-teacher interactions are two-way, with information, ideas, and direction flowing back and forth between the two. These are not typical classrooms; they are busy and sometimes noisy environments. Both questions and answers go back and forth: teacher to student, as well as student to student.

This two-way interaction has implications for how students are grouped for instruction. Traditionally, in reading, students are assigned to groups by ability (as measured by standardized test scores). Typically, these groups establish levels of expectations about what and how students read. Low groups are not given high-level texts or tasks, nor are they asked to answer high-level questions about what they read.

In a strategic reading classroom, teachers may want to challenge these notions about grouping students. Regardless of the ability level of students, learning tasks should include activities and discussions that encourage questions, from both teacher and students, that go beyond the literal level of "why, who, what, where, and how." In addition, plans should include the use of reading materials other than the basal reader for all groups. And, finally, even when students are homogeneously grouped for primary instruction in reading, at other times they should be heterogeneously grouped for other reading-based tasks and discussions.

Example: "Strategic" Reading Instruction

Teacher's comments: Today we are going to read about one of our better-known presidents. He was a very unique man. He was president at a time when our country was going through some difficult times. In fact, we were at war, but not with another country. Does anyone have an idea of the person I am talking about? (Question encourages students to engage in "before-reading" activity by activating their prior knowledge.) We are going to discover why and how this president created a place for himself in history. What was taking place during his term as president and why? What led to these events?

Teacher's instructions: As you read the text, see if you can determine what made this man so different, or if he was, indeed, different and unusual from our other presidents. (The use of the compare/contrast text structure is a good "during-reading" activity.)

Text Excerpt: Abraham Lincoln, the 16th President of the United States, was born in 1809 in a log cabin in Kentucky. His family were pioneers. They lived in the backwoods; therefore, there were no schools for Lincoln to attend. However, he had a great desire to learn, so he taught himself how to read and write...

Teacher's questions:

What kind of living conditions do you think existed during the time Lincoln was a young boy? What clues or information led you to that conclusion? What kind of a person, or what character traits did Lincoln have that made him want an education? How do you think these traits helped him to make some of the difficult decisions he had to make later in his life and career? Name three things that you admire, dislike, or agree or disagree with about Lincoln. (Reflecting and summarizing after reading.)

Note that the teacher's questions move beyond a literal analysis of the text and ask the students to engage in higher-level thinking about Lincoln. The teacher serves as a "coach," moving the students far beyond what they already know and what the text says.

Reevaluating How You Sequence Instruction

Reading instruction needs to reflect two important characteristics of the reading process: 1) Reading occurs in phases, *before*, *during*, and *after* reading and 2) reading is a stop-start process that is recursive. However, in traditional reading classrooms, we tend to focus most of our attention on the *during*-reading phase and to neglect the *before* and *after* phases or skip them altogether. Why? One reason is time. As teachers, we do not think we will have time to cover required content if students must spend time preparing to read or reflecting on what they have read.

Yet, research has established that students are more likely to learn and remember new information if they (a) have the chance to activate what they already know, ask questions, and acquaint themselves with unfamiliar vocabulary words and concepts *before they read* and (b) have time to summarize and integrate what they have read *after they read*. Teachers who *do* spend time in the *before* and *after* phases of reading are often amazed at their students' increased motivation and how well they learn and understand new material. Indeed, some teachers point out that the more time they spend helping students prepare to read, the less time they need to spend on the during-reading phase.

Thus, strategic instruction involves more than increased time; it is rather a redistribution of time available, focusing students on more quality interactions with the teacher and the text, both *before* and *after* reading. (See Example on following page.)

Example

Classroom A

The reading lesson is "The Pyramids." Most of the students look at the title, which seems totally irrelevant to them and, therefore, uninteresting. They follow the teacher's directions to read the selection and answer the comprehension questions at the end. Some "muddle" through the text; some pretend to read; yet others turn directly to the questions, start flipping back through the pages, looking for answers. At the conclusion of the reading period, when asked what they learned about pyramids, only a couple of students attempt to answer.

Classroom B

Same topic: "The Pyramids." Teacher asks questions such as, "What is a pyramid? What shape is it? Can the class find an example of one in their math book? What makes it so different from other shapes? What kinds of things are shaped like a pyramid? What movies have they seen that have pyramids in them?" After delving into their prior knowledge and discussing what they already know about this subject, the students eagerly read the text to discover new information and confirm their knowledge. As they read, they are silently and, perhaps, orally asking new questions, reaffirming their earlier speculations about pyramids, and making conclusions about what they are reading. After reading, when the teacher asks what they have learned, a spirited discussion takes place, with students impatiently waiting their turn to share information and knowledge.

How Do I Plan and Implement Strategic Reading Instruction in My Classroom?

Teach Strategies Not Skills

To help students become more effective readers, we should shift from teaching isolated, basic skills to teaching interrelated strategies. Skills are external activities, focused on the text set before the student, not on the student's thinking. Examples of skills are *finding the main idea, distinguishing fact from opinion,* and *remembering details.* In contrast, strategies are internal activities, such as using prior knowledge and inferencing. Teachers must attend to students' thinking processes when they teach strategies. The goal is to help students develop their own repertoire of strategies which they can use flexibly to construct meaning and to deal with problems they encounter in real text. Students thus develop a "conceptual home" for basic skills; they embed those skills in a broader mental map which they activate when they read.

Why is it important to teach strategies? It is true that a few students discover strategies on their own. But most do not, so they need to be taught. Research strongly indicates that most students need explicit instruction on what a strategy is, how to use it, why it is helpful, and when and where to use it. Without this knowledge, many students do not transfer or apply strategies to other reading situations and are not likely to become independent readers.

Although SRP emphasizes learning strategies rather than learning content, students always learn the strategies with authentic content. Students cannot learn strategies in isolation, apart from content. Students need something to apply the strategy to, so that they can see why it's important, where it works, and how it works before, during, and after reading.

Teachers first provide students with explicit instruction on a strategy and model how to use it. For example, if the teacher wants a group of urban students to learn how to "tap into" their prior knowledge about farm life, even though most have never even visited a farm, she or he would model "how to" by thinking out loud, allowing the students to see and hear his or her own thinking process. The teacher would inform the class of the purpose and benefits of using information and knowledge they already possess to help them find out new information.

Example

Teacher: I am going to read a story about a boy who lives on a farm and the problems he had. Now I have never lived on a farm, but I have seen plenty of movies and TV shows about farm life. I know that there are advantages and disadvantages to living on a farm (she or he would state examples of these). I also know that people who live on farms have animals that I could not have here in the city. I also know that farms need a great deal of land; therefore, the houses are not close together like houses here in the city.

The teacher would continue modeling by reading a part of the selection, stopping to explain to the class how she or he is making mental connections from what is happening to what is already known. As instruction proceeds, this structure provided by the teacher gradually decreases, so that students come to use the strategies independently.

Students do not immediately understand what it means to be strategic. Thus, the process of helping them learn strategies from direct instruction almost always takes a long time. But eventually, they learn how strategies work together in a variety of expository and narrative texts. In time, students also learn how these strategies can be applied to writing, to oral communication, and in mathematical, as well as everyday, problem solving. Students also develop positive attitudes about using strategies and a willingness to take risks as they try them out.

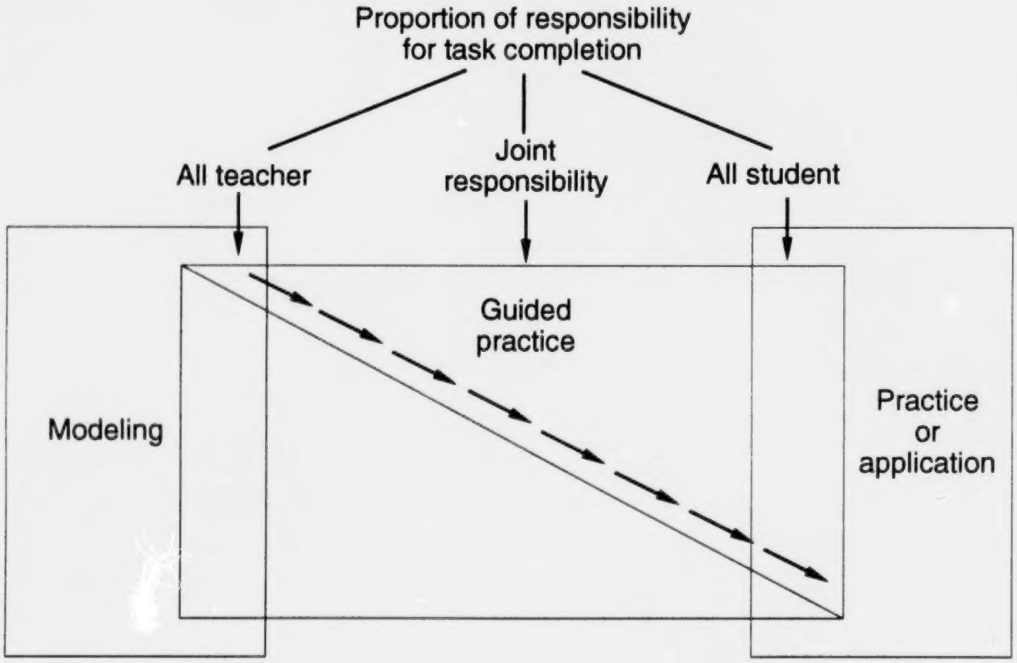
Promote Student Independence

Many researchers have urged teachers to give careful thought to the amount of support they give students. The Gradual Release of Responsibility Model in Figure 2 depicts graphically the idea of balanced support, that is, offering just enough support to ensure that students learn and grow toward independence. Initially, teachers assume full control of student learning, then students and teachers share responsibility, and finally full responsibility is transferred to students.

SRP suggests using a cycle of instruction that reflects the Gradual Release of Responsibility Model, a model developed by Pearson and Gallagher. As you can see in Figure 2, the model begins with teacher modeling and gradually moves the student through guided practice that results in the student assuming responsibility for practice or application of what has beeen learned.

FIGURE 2

The Gradual Release of Responsibility Model of Instruction



From P.D. Pearson and M.C. Gallagher, "The Instruction of Reading Comprehension," *Contemporary Educational Psychology*, 8, 1983.

In your teaching, you can convert the Pearson and Gallagher model into a cycle of instruction that will help you apply the model in your classroom. The cycle, including the instructional roles emphasized in each phase, is shown in Figure 3. Note that the cycle is used here as a framework for teaching reading strategies, but is useful for other arenas of learning as well.

Figure 3

Cycle of Instruction

Phases	**Major Function**	**Teacher Primary Role(s)** (Note: teachers can return to earlier roles at any phase; assessment occurs in all phases.)
Phase 1: Planning	Develop long-range plans for teaching a reading strategy.	Planner Assessor
Phase 2: Introducing the Strategy	Teach students what the strategy is, why it is useful, and how and when to use it.	Provider of information Model Assessor
Phase 3: Guided Practice	Give students opportunities to practice using the strategy with authentic text.	Model Coach Assessor
Phase 4: Independent practice in familiar contexts	Give students opportunities to practice the strategy with a variety of familiar texts to promote independence.	Facilitator Collaborator Assessor
Phase 5: Independent practice in unfamiliar contexts	Give students opportunities to practice the strategy with a variety of texts, increasingly different from texts they have already used, to promote independence.	Facilitator Model Coach Collaborator Assessor

Phase 1—Planning

Planning is the first phase of the cycle. Thoughtful, extensive planning is critical so that you can maintain an instructional focus as well as flexibility to respond spontaneously to students' unanticipated needs and responses. Lesson plans and units become dynamic guides that you fully expect to modify. Planning also extends beyond weekly or daily lesson planning, since you are addressing long-term goals. Lessons are not isolated from each other, but are variations of what's been taught before.

Consider the following example of planning that could be used to teach text structure to a class of sixth graders. In this instance, the text structure is compare/contrast. The students, seemingly, have a difficult time reading and understanding expository text. According to many of them, there are too many facts to remember and too much information to learn. Therefore, the teacher plans an instructional unit with two goals in mind: (1) to have the students learn the content dictated by the curriculum and (2) to teach the students a learning strategy that will help them accomplish the first goal with obvious success.

Example

Subject: Social Studies

Unit: Learning about other cultures

Objective: To teach students how to use text structure as a strategy and the element of *compare and contrast* in expository text to aid in learning, understanding, organizing, and remembering new information

Objective: To provide instructional techniques and activities that will give students an opportunity to practice and apply the strategy

Objective: To develop knowledge and understanding of the Japanese people and their culture

Objective: To teach students to transfer their knowledge and strategies to other learning situations and subjects

Instructional Activities:

Use direct instruction to introduce and identify the strategy.

Model the strategy using techniques such as "think aloud." Have students ask questions about "think aloud" to clarify their understanding of the strategy.

Have the students work in small groups to practice the strategy with a familiar text selection.

Have the students use the strategy with a required text selection (either individually or in groups).

Chapters to be covered:

The people

The family structure

Education

Government

Economy

Religion

Cultural aspects

Evaluation: Assess how well the students can apply the strategy by assigning a similar activity in their science book or other materials. Assess knowledge gained about the Japanese culture, how it is like and unlike that of the United States (discussions, reports, written tests.)

In planning a learning task, four important factors must be considered because they directly influence learning. These factors are: (1) the topic, (2) characteristics of the text, (3) characteristics of your students and the tasks they will perform, and (4) the context of your classroom. These factors should be taken into account regardless of whether you are planning for a day, a week, or for a unit that will take several weeks to complete. The order in which these factors are addressed is not important. However, using them as a criteria for setting your objectives is essential.

Topic

In SRP, the topic will be whatever strategy you are teaching (embedded in content, of course). You need to think about why, how, and under what conditions good readers use the strategy. The sixth grade teacher , in the example, knows that one of the strategies effective readers use with expository text is to, first, take a survey of the purpose and task— what has to be learned, why it is necessary to learn it, and how one goes about learning it. Good readers look at the way in which expository text is set up or organized to determine how this organization can be used to help them accomplish the task: in other words, the kind of information in the text, the amount or volume, and the manner in which the information is written or presented. The teacher determines that the text structure, *compare/contrast,* would be an effective way to help students "get a handle on" how to deal with learning new information. Why compare/contrast? Because this strategy allows the students a "base of operations" from which to start. They can use their prior knowledge of Japan as well as of their own country, and compare the two.

Text

Texts should be selected in light of how they will help your students learn the strategy. They should be authentic and easy enough so that students can concentrate on the learning strategy, but difficult enough so that they can learn to deal with comprehension problems. Unlike some basal texts or trade books that are written with a high-interest, low-ability focus, most expository text is written at the expected reading level of the grade for which it is intended. For example, a sixth grade social studies book will be written using the vocabulary, sentence and paragraph structure, print size, and concepts that would be expected at that level. In reality, individual teachers seldom get the opportunity to personally select the text that would accommodate the ability levels of their students. Because the available text must be used, the teacher should, within that text, select the chapter or lesson that *best* lends itself to the teaching of a particular strategy.

Students

Student characteristics are critical in planning, too. Some of your students may already be aware of the strategy and use it in their reading. Some may use a strategy, but not be aware of it. Others may not use it at all. For example, when students read a narrative text and are asked questions about the characters, one of the strategies used by good readers is to compare one character to another, or to someone they know. This strategy helps them better understand individual character traits and values, and to build expectations about how that character might establish relationships with other characters in the story.

To help students with comprehension problems, try using activities such as creating a chart. Have students list the characters, comparing their actions, responses, and so forth. Or try a mapping activity that students use to analyze relationships between and among characters. These kinds of activities help students gain a better understanding of the strategy and validate its use. By creating a variety of tasks or experiences, you can help students connect successful reading with their use of the strategy. When teaching the thinking process behind a strategy, remember you are trying to teach students to be aware of the thinking that goes on in their heads as they use the strategy. Being aware of one's own thinking (metacognition) is necessary for becoming a strategic reader.

Context

Decisions about the topics, texts, and students you teach can help you organize your classroom and select appropriate teaching methods. For instance, should you teach the strategy to the whole group or have students work in small groups first? This decision should be based, in part, on student characteristics, their prior knowledge, and their attitudes about reading. If some students are quite proficient at using the strategy and others are not, you may want to organize the class into small groups and use collaborative learning.

Another question might be whether to use a discovery model or to teach the strategy explicitly from the beginning. Much research indicates that students benefit highly from explicit instruction and teacher modeling when they first learn strategies. Modeling often involves thinking out loud, so that you externalize the thinking processes behind a strategy for students.

Assessment is an important part of the planning phase. At any point, you may need to consider branching off into a new line of instruction or even repeating instruction. And, where you begin later lessons depends on your assessment of students' understanding of the strategy during earlier lessons. Since thinking processes are invisible, you must plan ways to interact with all students, to assess and coach them as they develop their understanding. Assessment should be matched to your objectives, and it must be ongoing to help you determine what to do next. (Specific occasions and examples for assessment in each cycle are noted below.)

There is a difference, however, between assessing a strategic process and assessing whether students have learned content. In assessing the process, you are checking for students' understanding of the *what, when, why,* and *how* of a strategy. To assess students' comprehension of content, you evaluate how well the strategy helped students learn facts or gain information. Several activities can assess process. Questioning is one way to assess students' thinking; asking them to think aloud is another. Still another is to ask students to apply a strategy to a similar reading situation. The ability to transfer the use of a strategy to a similar or different situation is evidence that students have learned and understood a strategy.

Phase 2—Introducing the Strategy

The major function of this phase is to introduce students to the strategy by translating and interpreting the strategy for your particular students and classroom situation. In teaching new concepts, teachers sometimes use the "discovery method," in which they guide students through a series of learning steps in order to help them find the *what, why,* and *how* on their own. Another method used by teachers is direct teaching, or explicit instruction, in which the teacher simply tells the students what they are going to learn, how they are going to learn it, and why they are learning it—they let the students in on the "secrets" of instruction. Since strategic learning is new to many students, using the direct method may help them to better understand what a strategy is and how it can be helpful to them. In direct instruction, you should share *four* kinds of information with your students:

- What the strategy is
- How to use the strategy
- When and where the strategy should be used
- Why the strategy is helpful

1) ***What the strategy is, how it is labeled, and how is it similar to other strategies.***

In the following social studies lesson plan, in addition to teaching the required curriculum, the teacher sees an opportunity to teach the students a plan or strategy for learning new information.

Example

Teacher:

Class, we are going to learn how to use the structure—or the way in which the author has written the material in our social studies books—to help us learn information.

We call this "text structure," which simply refers to how written material is organized. The way we are going to use the structure of the book to help us is called a strategy. A strategy is a plan of action. Without a plan or strategy, it is very difficult to do most things. For example, the lawyers on "L.A. Law" never go into the courtroom without a strategy to help them win the case for their clients. Similarly, you are always thinking of a "plan of action," or a strategy, when you think of ways to avoid washing the dishes or taking out the garbage when it is your turn. Or, think about the strategy you use in trying to get additional money after your allowance has been spent. So, as you see, you use strategies all of the time.

There are different ways of using text structure to help us understand and learn. The method we are going to use with this chapter is *compare and contrast*, looking at how things are alike and different.

(To assess students' understanding of the strategy, ask them for examples.)

2) How to use the strategy and what steps, if any, are involved in using the strategy.
The students now know that a strategy is a plan. They also need to know that a plan generally involves a sequential (and sometimes recursive) process of activities or steps.

Example

Teacher:

We know that a strategy is a plan and that a plan is made of steps, things we must do to accomplish the plan. Sometimes the steps happen one after another; other times they do not. Again, we can use the example of a lawyer whose strategy is to first gather evidence, then check out that evidence, and later use it to defend his or her client. These are sequential steps, but sometimes the lawyer may have to go back to gather additional evidence if the defense is not going well.

Similarly, using text structure helps us better understand that information in a text also has steps. For example, steps that could be used to compare and contrast include:

1. Looking at the text to see how the author has organized the material
2. Previewing the text to determine what information is already known and what information is new
3. Determining important facts and information about the topic that seem necessary to complete the task

4. Selecting the facts and information that are familiar and comparing them to similar new information.
5. Selecting the facts and information that are unfamiliar and comparing them to similar new information.
6. Summarizing the information that is to be compared and contrasted.
7. Organizing information in a graphic manner that depicts the similarities and differences.

3) When and where the strategy should be used and with what kinds of texts.

In both narrative and expository text, a strategy such as *compare and contrast* can help students organize textual information more effectively. This organization can greatly enhance comprehension.

Example

Teacher:

Text structure can help you understand different kinds of text. For example, in *The Three Little Pigs*, remember how the author structured the story, telling you the type of building materials each pig selected. You can easily see, by comparing each pig's selection, which one was the smart pig.

Also whenever you have an assignment, as in social studies or science, which asks you to learn certain facts or information about the differences between people, animals, or countries, the text will most likely use "compare and contrast." When you read, therefore, pay close attention to the information the author provides. Most likely you will be able to identify categories that you can use to organize the information you have to learn.

Students should be made aware that the same strategy is not useful and effective in every situation, and therefore should not be used every time they read. Different strategies work for different tasks and different types of text. Even if the text structure, the task, and the purpose are the same, the same strategy should not be used each and every time. There is the danger of students limiting themselves to, and relying on, only one strategy to get them through the reading process. Remember, being a strategic reader means having a repertoire of strategies that can be used flexibly and selectively. Students should be taught and encouraged to use various strategies for different reading and learning tasks.

4) Why the strategy is helpful and how it will help students become better readers.

Equipping students with knowledge about different reading strategies, and how to use them, helps readers actively interact with text. They learn to construct meaning and better comprehend what they read. Students gain a sense of control over their learning, which helps them become independent and successful learners.

Example

Teacher:

Class, using the structure of a text can help you learn, understand, and organize information. Let's take a look at the text in our science book.

Scientists have determined that matter changes in three ways; these changes are physical, chemical, and nuclear. However, they also concluded that some of the ways that seem to be different are actually very much alike. A physical change is one in which the appearance of matter is changed, but not the matter itself. For example, if you tear a large sheet of paper into smaller pieces, you have changed its appearance (size and shape), but it is still paper. Therefore a physical change does not cause a different substance to be formed, it only results in a change in the shape, form, or size of that substance.

A chemical change is one in which the kinds of molecules are changed. For example, if you were to burn the large sheet or small pieces of paper, the burning would cause the paper to turn into ashes. In a chemical change, the numbers and kinds of atoms that are present do not change; the numbers of molecules present before and after a chemical change may or may not change, but the kinds of molecules always change.

A nuclear change is one in which the change in matter is the result of a change in the nucleus of an atom. We will discuss nuclear change later in the text. First, we will examine how physical and chemical changes are alike and how they are different.

Now students, think about things other than paper that can be changed physically. (Students respond with examples of cutting a pie, cake, fruit into pieces.) Teacher responds, "Of course, all of these things result in a physical change. Now, what things or objects do you know of that can be changed chemically?" (Students respond as before, and so on.)

Teacher:

So what do we already know about changes that occur physically and chemically? What new information have we just read about that we did not know before? Why do you think knowing about these changes is important to our daily lives? Read the text and see if you can find one definite way in which the physical and chemical changes are similar.

(Teacher—thinking aloud) The way I would approach this task is, first, to think about what I already know about changes. I know that when I place water in my ice trays and put them in the freezer, the water becomes ice cubes. I also know that if I want to make jello, I have to first dissolve the mix with hot water which changes it to liquid; then I place the liquid in the refrigerator, and it becomes jelled ...

Continuing, the teacher would then model a list of things that undergo physical changes and compare them with those undergoing chemical changes. The teacher would then show the students how to organize this information in a matrix or some other type of compare/contrast chart.

Modeling and Direct Instruction

Many teachers use modeling as part of their explicit instruction. Modeling is a powerful teaching technique, especially for thinking processes that remain invisible unless we talk about them. Modeling enables you to make thinking public, so that it is sensible to students. In this way the strategy becomes useful because it gives the readers a foundation on which to build knowledge. It also may provide low-achieving students with a level of success they may not have previously experienced.

Certain caveats about modeling are important to keep in mind. When you model, you are analyzing *your* thinking processes. The purpose of modeling is not to get students to think the way you do, but to think about their own way of thinking. Thus, modeling should be *descriptive,* not *prescriptive.* The emphasis is on modeling *strategic thinking,* not rote steps of a strategy. In addition, later in the guided practice phase, when students have the chance to model their own thinking for their classmates and listen to their peers' thinking, they will learn that there are many ways to think about text and many ways to use a specific strategy.

The move from direct or explicit instruction to the next phase, guided practice, depends upon how well you think the majority of your students have internalized the use of a particular strategy. As with most areas of learning, all students do not learn the same material, with the same understanding, and at the same rate. If you move too quickly from one phase to another, some students will become confused or frustrated. If you move too slowly, others may become bored and lose interest. So how do you know when to make the shift? You engage in ongoing, informal assessment of student thinking. For example, as a reading activity is taking place, simply ask the students how they would go about trying to learn or make sense of the information—which strategy they would employ. Have them do a "think aloud." From such an assessment you may decide that many students are ready for the guided practice phase or that others may need additional explicit instruction.

Phase 3—Guided Practice

Guided practice is the heart of the teaching cycle. Its primary function is to provide students with opportunities to practice under your guidance. Thus, it requires extensive interaction between you and your students. It also requires the establishment of a classroom climate that is non-threatening and open to new ideas, and where the students feel secure and trusting. For example, if you use the technique of questioning, the students should feel safe in knowing that if they give the wrong answer, they will not be ridiculed. Also, if they tap into "wrong" prior knowledge and share something that is "off the wall," students need to know that you will provide a safe shield for them.

Many teachers begin the guided practice phase by reviewing the strategy and modeling its use with a new text. As your students try using the strategy themselves, you want them to share their thinking with you and to show you how they use the strategy. Questioning is one way to assess students' understanding. For example, "Would you tell us what you did so we know how you found that answer?" "How did you do that?" "What made you think of that?" Another approach is to listen to students talking with one another about how they are thinking. Your role is to assess what students say and do and to make decisions about how to provide additional assistance, such as giving cues, elaborating, asking for clarification, or reinforcing what they are doing. That is, you may need to shape and fine tune their understanding to be sure they "own" the strategy. This usually cannot be accomplished in one lesson.

This kind of interaction between teachers and students is an example of mediated instruction. Mediation can be thought of as a negotiation between you, your students, and what you want them to learn. Students act as mediators when they negotiate meaning from both the new information you have provided and their prior knowledge. The meanings they construct may be accurate, or they may be incomplete or misconceptions. Teachers mediate between students' earliest understandings of a strategy and later, more sophisticated understandings. Students reveal their understanding through what they say and do as they practice the strategy. Teachers use this information to make decisions about how to respond to students. Mediation is critical when you want to reinforce students' accurate understanding or change their misconceptions. This responsive cycle continues until you are satisfied that your students understand the strategy enough to move to the next phase. Mediation must be planned for, but your decisions depend on your assessment at the moment of each interaction.

While your primary teaching roles in the second phase, *Introducing a Strategy*, are information giver and model, your principal role in the *Guided Practice* phase is that of coach. As a coach, you demonstrate, ask students to try the strategy and practice it, and provide feedback on how well they are doing until they can do it on their own. You support students' use of the strategy and adjust your support according to: 1) how well students use the strategy, 2) the difficulty of materials, and 3) the complexity of tasks.

Phase 4—Independent Practice in Familiar Contexts

In this phase, you begin withdrawing support so that students practice and eventually apply the strategy independently. You will want to increase, somewhat, the variety, length, and complexity of reading materials so that students can apply the strategy to various texts. However, you do not want to deviate too far from familiar text topics and stories since students will be practicing the strategy independently for the first time. For example, if students have been reading articles about a particular topic such as amphibians, you might provide them with stories or poems about amphibians.

In providing appropriate text samples on which students can practice, you should also consider cooperative learning, allowing students the opportunity to work and learn together. Your students can practice reading various selections and orally questioning each other on the *whats*, *whys*, and *hows* of strategy use. Giving them sufficient time to practice is also important.

In this phase you will probably want to remind students to use other strategies so that they can see how strategies interact to enhance their enjoyment and learning from text. Assessment continues in this phase. You may find that students need increased support for a time as they apply the strategy to more varied materials, and as they attempt to integrate strategies.

Phase 5—Independent Practice in Unfamiliar Contexts

Once students have practiced in a familiar context, you can move them into an unfamiliar context, based on your ongoing assessment of their progress. This means giving them their wings and allowing them the freedom to see how far and how high they can fly. In instructional terms, it means encouraging them to expand their knowledge base and assess how well the process is working. Students should be transferring strategies to more difficult and varied materials, doing more strategic reading on their own, and applying strategies in the diverse contexts in which reading takes place; for example, in social studies class or in reading they do outside of school. They should apply strategies to longer texts that contain more difficult concepts and to new genres and formats—drama, newspapers, essays, even non-print texts such as videos and film. They should be encouraged to practice their knowledge and use of strategies, using materials that are typically not found in their classrooms. Materials such as do-it-yourself manuals, application forms, train and bus schedules, recipes, credit contracts, instructions for assembling a toy, and directions on sewing patterns can all benefit from a strategic approach.

A Final Word

The way we teach reading shapes students' attitudes and beliefs about reading. The work we ask students to do, the behaviors we model, the methods we use to teach, the questions we ask, and our responses to students' ideas and questions should reflect the concept that reading is constructing meaning, not reproducing meaning or pronouncing words correctly. Everything we say and do should help students to be "thinkers." Students should learn to view text as a source of enjoyment and fulfillment and as a body of evidence they use to draw conclusions, support their opinions and judgments, and verify factual claims. Instruction should lead students to this attitude. We are obligated to respect the thoughts of each student in our classroom, thoughts that derive from their prior learning in school and from the strengths and styles of their own cultures. We need not create 35 individual lesson plans to accomplish this, but we must teach in ways that permit us to respond to the thinking of every student.

Q: If I take the time to use these reading strategies, how will I get through the entire basal this year?

A: Traditionally, we worry more about covering curriculum than the quality of what students learn as they move through the chapters of a book. Because basals and their associated workbooks usually teach skills in isolation and repeat them in a spiral fashion, students are only "exposed" to a given skill, if and when they reach the lessons that emphasize those skills. For example, a basal might only introduce and practice a concept in stories 2, 6, and 14. Because strategic reading is a more holistic approach, essential skills and strategies are introduced and used as appropriate. Students using this approach are taught the *what, how, when,* and *why* of an array of strategies. They are taught how to select the appropriate strategy for a particular text and reading purpose. Moreover, students will learn to use this approach with all reading they do in all content areas and not just associate the use of reading skills with the basal. Thus, while students may not reach the end of their basal reader, they will, in fact, have received more practice using the strategic reading process than they would with a more traditional approach.

Q: Isolated reading skills are measured on standardized tests and my principal, students, and parents are very concerned about those scores. How can I use the strategic reading process and still have my students do well?

A: The strategic reading process does not ignore the skills that are measured on these tests, but places them into a broader and richer context that is within the active control of students. The students still learn skills such as *skimming, cause and effect,* and *how to use a dictionary,* but their use is integrated within the context of authentic text. In more traditional instruction, students typically work on a single skill in one isolated context, separate from other skills and strategies and use it only with single sentences or short constructed paragraphs. Traditional reading approaches hand the readers the tool they will need for a given assignment and make the assumption that they will know when and how to transfer for authentic reading tasks. Students are not taught when and why it is appropriate to use the skill and so they often do not transfer the use of the skill from the individual workbook page to any other reading task.

In the strategic reading process, on the other hand, students learn to use individual skills as part of a larger "toolbox." Just as the carpenter must know both when and how to use a given tool, so do strategic readers. They learn strategies for selecting and using a mix of skills within the context of various types of longer, authentic text. Because they have learned to use them in a more flexible and active way, the students are more, not less, likely to know how to use them and transfer this use to social studies books and science experiments, as well as standardized achievement tests.

Q: Some of my kids have very little experience that is related to what we are reading and learning. What prior knowledge can they bring to text?

A: Students may not have firsthand experiences, but they have both information and misinformation. Students obtain this generalized information from TV, videos, comics, movies, games, family opinions, and their own imagination. For example, they may not know a specific war but they know about wars in general and are able to generalize some relevant concepts, e.g. "In wars winners are also losers." In discussion, they can give examples, relate the general to the specific, make connections to their own experiences, and share their reactions to the information. Unlike traditional factual answers that are short and specific, a classroom climate that is open, supportive, and encouraging stimulates the student to make more connections. This is especially true in classrooms where teachers model their own connecting of experience and text in "talk alouds."

Q: Not all of my time can be spent in direct instruction. What kinds of independent activities are approproate with this approach?

A: Once we get away from the narrow view of independent seat work as portrayed in traditional workbooks and texts, we can come up with more creative ideas that are not that difficult to implement and usually are much more motivating. Activities that have students applying information gained from text make use of the multi-talents of a class. Students can work alone, in pairs, and in groups to illustrate, dramatize, and editorialize the text. For example, the class may decide to create a newspaper existing at the time of the text, and each student can elect to "report" on the subject in a different manner using cartoons, travelogues, editorials, letters to the editor, headlines, eye-witness accounts, investigative reports, etc. Another subject may lend itself to recording student reactions using logs and journals. Students can also write about the way in which the readings relate to them personally, sharing these accounts with each other, the teacher, or their parents.

Q: I have thirty kids in my class and four reading groups—I can't possibly handle this approach for each group.

A: This model is for all texts. Consequently, students in all four reading groups can learn and apply reading strategies to their texts. Moreover, reading strategies need not be confined to basal groups. The strategies can be taught in whole group situations such as the content areas, so they should be used whenever reading for learning occurs. Through the use of cooperative learning groups and peer coaching, students can be sources of knowledge for one another, deciding on strategies, modeling for each other, and extending connections from prior information to the current text. This is not the traditional approach of teacher-as-source-of-all-knowledge, but rather a gathering of all experiences to help all students learn to make real connections to text.

Q: My students don't think. How do I get them to think?

A: Many teachers and students view thinking in a narrow sense of "one right answer." But, in fact, students use their thinking to do multisolution problem solving constantly in and out of school. However, traditional approaches to learning have often not valued real-life experiences. So students have learned from this that their "real life" is not relevant and not part of school tasks. Strategic reading links students' real-life experiences to their reading by using their pre-exsting knowledge to enrich reading comprehension and make the text more relevant and meaningful.

Q: My students are accustomed to a more passive instructional approach to reading and, therefore, may not feel "comfortable" with actively participating in oral, interactive discussions. How can I get them involved?

A: You, as the teacher or facilitator, will have the responsibility of setting the tone for your classsroom by creating an atmosphere of trust and mutual respect. Students are generally always eager and willing to talk and share, as long as they feel secure in the knowledge that they will not be "chided" or laughed at for giving the wrong answer or for making a "silly" remark. You will also have the responsibility of developing and asking the "right questions" that will challenge students to use their critical thinking skills rather than looking for the answers in the text. Once your students cease to view you as the "giver of knowledge," and realize that they, too, have a great deal to contribute to the learning process and knowledge base, they will be more willing and actually enjoy the interaction between themselves, their peers, and you.

ANNOTATED BIBLIOGRAPHY
(in suggested order)

Anderson, R., Hiebert, E.; Scott, J., & Wilkinson, I. (1985). Chapter 2, What is reading? In *Becoming a nation of readers: The report of the commission on reading* (pp. 7-18). Washington, DC: National Institute of Education.

Defines the nature of reading as currently reflected in the research. Looks at the process of reading and how that process occurs. Key concepts such as strategic constructive nature, fluency, flexibility, motivation, and life-long pursuit are expanded.

Pearson, P. D. (1985). Changing the face of reading comprehension. *The Reading Teacher. 38,* 724-738.

Using an active-constructive model of reading, this author describes and illustrates six changes that must be made in the way we teach reading. These six include first changing our model of comprehension and then taking another look at our questioning, vocabulary instruction, comprehension skill instruction, the reading-writing relationship, and, most important of all, the teacher's role in this model of instruction.

Jones, B. F., Palincsar, A. S., Ogle, D. S., & Carr, E. G. (1987). Planning for strategic teaching: An example. In B. F. Jones, A. S. Palincsar, D. S. Ogle, & E. G. Carr (Eds.), *Strategic teaching and learning: Cognitive instruction in the content areas* (pp. 64-70). Alexandria, VA: Association for Supervision and Curriculum Development

Provides a teacher think-aloud as s/he plans a lesson. Allows the reader to listen to the teacher's decision-making process as s/he considers the readers, the text, and task and context of the learning situation. The reader is given an excellent demonstration of instructional scaffolding and the procedures for doing such planning.

Herber, H., & Herber, J. N. (1987). Developing independent learners. *Journal of Reading. 30,* 584-589.

Using the goal for reading instruction as the development of independent learners, the authors present principles related to creating that independence. The recommendations made are intended to add to teachers' instructional repertoires and to make teachers' efforts to teach strategically more effective.

Duffy, G. G., & Roehler, L. R. (1986). The subtleties of instructional mediation. *Educational Leadership. 43*(7), 23-27.

Describes the cognitive interaction that must take place between students and teachers when the goal is to develop conceptual understandings. Models and discusses the importance of the teacher's role as a cognitive mediator who verbally mediates students' understandings.

Paris, S. C., Oka, E. R., & DeBritto, A. (1983). Beyond decoding: Synthesis of research on reading comprehension. *Educational Leadership. 41*(2), 78-83.

Discusses three major kinds of knowledge that students must have in order to be strategic readers — declarative (knowing what), procedural (knowing how), and conditional (knowing when and why). Suggests that students need to be taught and practice these three knowledges so that they can analyze, plan, monitor, and regulate their learning.

Note: The content in the Unit 1 Essay was drawn from the above references and from Jones, B. F., Tinzmann, M.B., Friedman, L. B., & Walker, B. J. (1987). *Teaching Thinking Skills: English/Language Arts.* Washington, D.C.: NEA and from Jones, B. F., Palincsar, A. S., Ogle, D. S., & Carr, E. G. (Eds.) (1987). *Strategic Teaching and Learning: Cognitive Instruction in the Content Areas.* Alexandria, VA: ASCD and Elmhurst, IL: NCREL.

2 UNIT

Prior Knowledge

Unit Overview

Contents: A. Suggestions for Staff Development Activities

B. Unit Essay

Focus — Introduces strategic reading in an everyday situation.

1. What is Prior Knowledge?
2. How Do Readers Use Prior Knowledge When They Read?
3. How Can I Teach Students to Use Their Prior Knowledge Strategically When They Read?

Reflections — Answers questions you may have about how to integrate the prior strategy into your classroom

C. Annotated Bibliography

UNIT OVERVIEW

In this unit of the Strategic Reading Project, we introduce you and your school to prior knowledge as a reading strategy. This unit answers three basic questions about prior knowledge:

1) What is prior knowledge?

2) How do readers use prior knowledge when they read?

3) How can I teach students to use their prior knowledge strategically when they read?

As in Unit 1, this unit also includes a **Focus** section that introduces the concept of prior knowledge in an everyday situation, and a **Reflections** section that includes questions you may have about how to integrate this strategy into your classroom and school.

The staff development activities below are suggestions for how you and your colleagues might use the SRP materials.

UNIT 2

Suggestions for Staff Development Activities

Building A Knowledge Base

- Read the Unit 2 Essay, consult the Annotated Bibliography and select one or two articles to read. Discuss the readings with other teachers.

Before you read...

- Write a working definition of prior knowledge and explain what you think it has to do with reading and learning to read.
- Discuss what you do when you have trouble understanding a text. Discuss what students do.
- Discuss what makes familiar and unfamiliar texts easy or difficult for you and for students.
- Think of your own reading interests. Reflect on how those interests developed. How does your prior knowledge (your experiences and/or knowledge) influence your choice of reading materials? Ask students to do the same or interview them on their interests and experiences.

After you read...

- Summarize the ideas in the unit. Compare your new understanding of prior knowledge to the definition you wrote before you began this unit.

- Discuss some ways students' prior knowledge can *increase* their reading comprehension.
- Discuss some ways students' prior knowledge can *interfere with* their reading comprehension.

Observing Models and Examples

- Listen to SRP audiotape(s) for Unit 2. Discuss with colleagues. Sit in on a classroom demonstration (or watch a video) of teachers using prior knowledge. Discuss and write down examples of the following:
    - Introducing the prior knowledge strategy
    - Guided practice in the prior knowledge strategy
    - Independent practice in the prior knowledge strategy
- Create a matrix that helps you compare and contrast the different models and examples you have observed.
- Practice "thinking and modeling aloud" with colleagues.

Reflecting on Your Practice

- Brainstorm alternatives or adaptations of the examples in the audiotapes and articles that you think would work in your school.
- Describe and analyze a typical reading lesson in your school and evaluate how well it helps students learn about and use prior knowledge. (Videotaping is very effective for self-analysis.)
    - What are the goals of the instruction?
    - How do characteristics of students influence instruction?
    - What emphasis is there on strategy instruction (vs. skills instruction)?
    - How are texts selected and for what purposes?
    - How much time is spent in the *before-reading* and the *after-reading* phases?
    - How are students helped who experience comprehension problems?
    - When and how does assessment take place? What purpose does it serve?
    - What role or roles does the teacher assume in instruction?
    - How flexible are lessons to take advantage of "teachable moments?"
    - What happens when planned instruction is not effective?
- From this analysis, identify strengths and weaknesses in your current reading instruction.

Changing Your Practice

- Rewrite a basal lesson so that it helps students use their prior knowledge.
- Plan a unit to teach students the prior knowledge strategy. Keep a journal that you can share with a colleague, reflect and talk with colleagues, reflect on your instruction with students, and review readings, etc., to self-evaluate the effectiveness of your lesson.
- Observe another teacher teaching the prior knowledge strategy or invite a teacher to model the strategy in your classroom.
- Identify a problem you feel you have in teaching the prior knowledge strategy to your students. Invite a colleague to observe your classroom when you teach the prior knowledge strategy to observe and provide feedback to help you solve this problem.
- Generate ways you can help students elicit and use prior knowledge they already have about topics and ways you can *build* students' prior knowledge about topics that you discover are unfamiliar to them.

Gaining Expertise

- Model teaching the prior knowledge strategy in someone else's classroom.
- Coach a colleague who is learning to teach the prior knowledge strategy.
- Create staff development materials and activities for other staff in your school or school district.
- Design demonstration lessons teachers can use/adapt in their classrooms. Collect demonstration lessons from other teachers for a resource book.
- Identify a body of materials (e.g., texts and other media from your resource center/library) that you and others have found effective for teaching students the prior knowledge strategy.
- Produce videotapes that illustrate classroom lessons/units for the prior knowledge strategy.

ESSAY

Joan is an investigative reporter who has just been given an important assignment. She knows from past experience that she will be most successful if she approaches the task strategically, rather than by just rushing into it. Before beginning her interviews, Joan always thinks about anything she has previously heard, read, or knows about the subject of the investigation, as well as related topics. She also researches old newspapers and documents, and talks with her colleagues about their previous knowledge of the topic. Joan carefully considers all the ways in which this earlier information relates to the specific focus of her news story. Using this knowledge as a starting point, she then formulates questions and hypotheses for the investigation. Finally at this point she begins to collect new data by examining, questioning, and scrutinizing information that she receives from her news sources.

Good reporters are committed to an objective and thorough coverage of their subjects. While Joan may have formed some initial hypotheses about the topic as she does her investigation, she always remains open to discovering that her original information and hypotheses were incomplete or inaccurate. She uses her previous information to start her thinking about the subject but does not allow it to limit it or blind her to the truth, even if it is contrary to her expectations.

One might compare the procedure that Joan uses to that of how effective readers activate their prior knowledge before reading new text. They, too, approach their new task strategically. They do not simply plunge into new text without first consciously and methodically thinking about what they already know and how this prior knowledge links to their new reading. As a result, good readers form expectations and hypotheses about the meaning they will construct in the new text, based on their past experiences with both the content and the structure of the text. But just like Joan, the investigative reporter, good readers do not allow their past experiences to obstruct their thinking. They realize that as they learn more about a topic through further reading, they may discover that their past understanding was incomplete and/or inaccurate.

What Is Prior Knowledge?

Our prior knowledge includes all our past learning. It includes what we've heard, read, and experienced. Prior knowledge is what we already know about content as well as strategies we have learned from both our academic and everyday experiences. Prior knowledge is individual, since no one has exactly the same experiences as any other person. Yet we can share common experiences and knowledge with others, so our prior knowledge may be similar. The important thing to remember about prior knowledge is that everyone has it. It may be incorrect, incomplete, or filled with misconceptions, but we all have it. Indeed, prior knowledge is the fundamental strength each of us brings to learning. Our prior knowledge is the conceptual and experiential base upon which we build new learning. In fact, building and elaborating on students' prior knowledge should be the primary business of schools.

What we know about prior knowledge is based on research in schema theory. According to schema theory, what we know and experience is stored and organized in schema, or "mental file folders." When we confront new knowledge or experiences, we open our schema or "file folders" and relate new information to old information. We compare the existing information in our schema to what we are learning, asking ourselves questions if we do not understand, or if our prior knowledge does not agree with the new information or experience.

Like the reporter writing the story, we keep linking new information to old, elaborating on what we know and what we are learning to construct meaning. We use other strategies, such as inferencing, to fill in the gaps when something is unclear or unknown. Effective readers engage in this process constantly to increase their comprehension of written text. Reading is therefore an ongoing process, in which we constantly analyze, add to, and reorganize our schema or prior knowledge.

In reading, prior knowledge is probably the most important influence on text comprehension. A reader's comprehension is most effective when he or she links what they already know to what the text says. Prior knowledge affects how well we read because it includes our preexisting knowledge, our attitudes, and our experiences.

Knowledge

- Knowledge of the reading process itself, or what it means to be able to read. When a reader's prior knowledge about the reading process is strategic, they understand that the goal of reading is to make meaning and that readers use strategies before they read, as they read, and after they read to achieve comprehension

- Knowledge about content, such as history, science, and literature; about particular topics, such as the Civil War, photosynthesis, and fables; and about concepts such as democracy, arbitration, and communism

- Knowledge of genre; for example, folk tales, poetry, news articles, essays, and their similarities and differences

- Knowledge of text structure or the ways in which authors organize text to present information; for example, narrative, descriptive, and problem-solution

Attitudes

- Beliefs about ourselves as readers; that is, a sense of how effectively we read, which, in turn, influences how much effort we are willing to expend when reading
- Awareness of our particular interests, which also influences how much effort we are willing to exert
- Motivation, and our desire to read, think, and learn, which also affects how much effort we expend

Experiences

- Everyday activities that relate to school-based reading tasks
- Events from our lives that provide us with background understandings of concepts we will encounter in texts
- Family and community experiences that feed our prior knowledge and that we bring to school with us

From recent research, we know that reading is an interactive process that engages the reader, the text, and the context within which reading is taking place. But, when we say that reading is interactive, the reader and his or her prior knowledge is central to that process. In a classroom, the teacher can guide and direct reading tasks as well as the context within which students are working. But only readers themselves can orchestrate and therefore control their comprehension of text. Drawing upon their preexisting knowledge, experiences, and attitudes, they construct their own meaning by connecting what they already know to information and ideas in a text. For each student, this is an individual process of building understanding that must be acknowledged and respected in instruction.

What does this mean in a classroom where students are diverse and come to school with varied backgrounds and prior knowledge? It means that language and culture must be integrated into instructional approaches. That is, language and culture can be used as a vehicle for the delivery of instruction. Thus, diverse student characteristics can become a rich classroom database for learning, especially where textbooks and other printed materials offer the primary classroom resource for instructional activities. Students' own knowledge and experiences can enhance and expand the information from texts. Furthermore, students can be taught to bring their own interests and knowledge to bear when they read.

Prior knowledge is an underutilized resource in most classrooms. Often, students do not believe they have valuable information and experiences to offer in school. And, unfortunately, in schools, we often discount what children bring from their homes, families, and cultures. Without a doubt, some of our students' prior knowledge is either incorrect, inappropriate, or ill-conceived. But they bring it in the door with them and so it must be dealt with. Indeed students must learn how to evaluate their prior knowledge and make judgments about its application to school-based reading and learning tasks. In this unit, we will discuss how you can help your students better activate and use their prior knowledge in reading.

In summary, prior knowledge is a composite of who we are and what we know. In classrooms, instruction can tap into students' prior knowledge, using it as an entry point for learning. When students read, they can learn to activate their prior knowledge, using it to organize and frame what the text says. Teaching students to control this process can help make them more effective readers.

How Do Readers Use Prior Knowledge When They Read?

Using Prior Knowledge Before Reading

Typically, students approach classroom reading tasks with a fixed purpose and an expected set of tasks. For example, a class may be reading an assigned basal story, writing definitions for the vocabulary words, and answering the questions that follow the story. In this instance, the definitions and questions, not the content of the story, are driving the students' interaction with the text. To complete the assignment, students will usually read the story quickly and then begin the assigned work. Often, the teacher will begin the class with a review, focusing on the vocabulary words, the theme or subject of the story, and the type of story. The review may sound like this:

Example

Teacher:

> Ok, class. Let's turn to today's story in our readers. It's on page 84. Read me the title. (Class responds: "My Family Moves to the Rain Forest.") Do you remember when we talked about Point of View? Is the story written in the first person or in the third person? (Class members raise hands and give answers.) So when we read, let's look for terms that signal that this is written in the first person. You might want to make a list.
>
> Why do you think someone might move to a rain forest? (Answers vary, but most have to do with wanting to move where it is hot, or speculation that the mother or father is working for a company that deals with trees, and one student mentions that he heard that rain forests are in trouble.) Those are good guesses. Some of you have obviously heard a little about rain forests somewhere before. Let's read and find out why the family moved.
>
> But before we read, let's look at some of the vocabulary words that you will need to know. Turn to page 91. There we have the definition of a rain forest, so some of you were right about what it is. Another word defined is *erosion*. Let's read that definition. (A volunteer reads.) I saw some other words in this story that might be new to some of you. I'll list them on the chalkboard. As you read, let's practice the skill we learned several weeks ago—using context clues to try to figure out what the word means. You might want to write down what you think the meaning is and why. Then confirm it by looking up the word in the glossary or a dictionary.

This teacher/student interaction represents typical before-reading activities in traditional reading instruction. The teacher wants to make sure that students are prepared for reading the story and completing the assigned work. But is this kind of review the best preparation to help students comprehend the story? While this review is perfectly adequate for having students write definitions and answer the basal questions, it is not enough to support their full comprehension of the text. The review, while good, as far as it goes, does not challenge students, either individually or collectively, to activate all of what they already know about the subject of the story and apply that information to their reading. Nor does it ask them to think about what problem or situation the story is presenting. And it does not help students raise questions or generate real curiosity and interest in the story. As a result, the students' principal purpose for reading is to practice using context clues, to write definitions, and to answer the assigned questions.

Contrast the *Review* with the *Before Reading* activities in the class below:

Example

Teacher:

As you know, Central America is one of the continents we are studying in Social Studies. I've heard some of you talking about that continent. Did you know that Concetta and Jesus are from Guatemala? Concetta, what continent is Guatemala on? (She answers — Central America.) And where is Central America? (A student volunteers that it must be between North America, where we live, and South America.) Absolutely right, says the teacher.

Today, we are going to read a story about a family in Central America. The story is called, "My Family Moves to the Rain Forest." Let's look at the story first to get some clues about it. (The teacher elicits suggestions.) Do you know anything about rain forests or moving that might help us understand the story? (She elicits responses.) I just thought of something: I know there's been something on the news. Does it ring a bell with any of you? (Several students start talking.) Class, let's let Concetta go first. (Concetta relates that she saw something on TV about rain forests being destroyed but that's all she remembers. Concetta selects another classmate to elaborate on the issue. Ginny says that the weekly scholastic magazine had an article on rain forests in Belgium and that people were tearing them down. Jeffrey says to Ginny—it's Brazil, not Belgium—Brazil is the one in South America. The discussion continues—a class recorder writes some of the information about rain forests on the large sheet of paper on the easel.)

The teacher then takes a red marker and writes OUR PRIOR KNOWLEDGE ABOUT RAIN FORESTS on top of the easel page. She asks the class what *prior knowledge* is. Someone says, "What we already know." The teacher then asks, "Why is our prior knowledge important?" Larry tentatively suggests that it can help us read better. "But how?" asks the teacher. Robert fills in the details: "What we know helps us understand what we don't know and therefore helps us ask the right questions as we read." "That's important" says the teacher. "For example, because we know that rain forests are in Central America, we can remember what we know about that continent — that it is close to the equator and therefore is hot and rainy. Today, we had a lot of help with rain forests because of what Concetta, Ginny, and Jeffrey knew."

Teacher:

Our prior knowledge can come from ourselves or from others, including books. It helps us to read because then we start asking ourselves questions about what we don't know or don't understand. What questions do you have about this story? (Several students start talking simultaneously.)

Students:

Why do they call it a rain forest? Don't all forests need rain? Is a rain forest more dense and humid than a regular forest? If rain forests are being destroyed, why in the world would anyone want to move to a rain forest? Is this family moving there to help the rain forests? Is it going to be dangerous? Are they taking their children? The title says, "My Family ..." — Who's telling the story?

Teacher:

It's great to hear so many questions. Why don't you each think a little more about what you know and write down one or two of your own questions and goals for reading the story. Share them with your group members and then go ahead and read the story to yourself. Later we'll talk about whether you reached your goals and answered your questions.

Notice how the teacher works with students to help them retrieve their prior knowledge. Students were responsible for activating their prior knowledge, but the teacher carefully controls the instructional environment to guide this process. Notice also how the teacher carefully builds on the knowledge of Concetta, a native of Central America, to enrich the discussion and to, possibly, enhance the self-esteem of Concetta. As this strategic reading instruction proceeds, these students will learn that they can continuously use their (and others') prior knowledge throughout the reading process. Classroom talk, that is guided by the teacher, as well as independent discussions among students, will reflect students' use of their prior knowledge as they further organize, structure, and summarize what they are learning.

Using Prior Knowledge During and After Reading

As students read, they learn to use their prior knowledge to help identify important information. What they already know about a topic and how texts are organized give them clues about what to pay attention to. It provides mental slots (file folders) for additional information and permits inference and elaboration.

For example, many students know that social studies texts usually present certain categories of information about regions or countries, including information about the political structure of a nation, its climate and topography, the characteristics of its population, a description of its economics, its major religions, and so on. Thus, even when they read about an unfamiliar region or country, they can predict that the text would provide information to fill these typical slots, and if it does not, they know they will have to seek other resources (e.g., another text) to find out what they need to know. Strategic readers also use prior knowledge to continue making and/or checking predictions, forming mental pictures, and drawing analogies between what they know and what they read. They use their prior knowledge to monitor their understanding and apply fix-up strategies when they experience problems in understanding.

After reading, prior knowledge helps readers summarize and organize information so that it is easier to remember. Prior knowledge can also serve as a basis for discussing new information; for example, when readers relate what they learned to what they knew before they read. Some of their previous knowledge may be verified. Some may be modified, for example, when they learn that their old beliefs are not true, or when they discover that they have learned new information and integrated it with what they knew before. (See Figure 1.)

FIGURE 1

Reading/Thinking Activities Before, During, and After Reading

Reading begins

↓

Before

Skim the text, using information from teacher about task/purpose

↓

Form hypotheses about what text is about and how it is organized

↓

Use these hypotheses to activate prior knowledge of content and organizational patterns → More than recall or review

↓

Scanning files and selecting relevant information and deciding if information is related

↓

If…
Then… ← More inferences

↓

Use inferences from activating prior knowledge to make predictions about meaning and organizational pattern of text and best strategy to use
→ Stop/start
→ Read /take notes
→ Outline
→ Read first/go back to notes
→ Look up words and then read

↓

During

As actual reading progresses

↓

Think about early hypotheses
→ Confirm them
→ Change them
→ Reject them

↓

Think about strategy → Is it working?
Do you understand?

↓

As reading progresses → Ask yourself:
→ What is important?
→ What is not important?
→ How are ideas related?
→ How does new information compare to your prior knowledge

↓

Maintain an active interaction with the text

↓

Revise and Refine your thinking as you go

↓

Sometimes → Recall additional information from memory
→ Change past ideas/misconceptions
→ Disagree with author
→ Anticipate new content
→ Restore unncessary information

↓

Construct meaning for segments of text, linking new information to what you already know

↓

Stop and go back if you do not understand

↓

After

Consolidate what you have read and
Summarize → Represent the text
↓
Mentally or graphically

↓

Ask yourself if you understand the big picture

Do you see how new information links up with your prior knowledge?

Can you apply the new information to another situation?

In summary, when readers read about a familiar topic, their prior knowledge makes it easier for them to pick out important information and remember it. When they read about an unfamiliar topic, their prior knowledge can help them ask questions or generate analogies or metaphors between new information and what they already know, or it may help them see that they need to build their prior knowledge by consulting other resources before they read. Recognizing these as effective reading strategies and using them constantly when reading are factors that make some readers strategic.

How Can I Teach Students To Use Their Prior Knowledge Strategically When They Read?

Promote Student Independence

The idea of using what they know to understand what they read is often a revelation to students, especially poor readers. In instruction, therefore, the teacher is often faced with students who are not accustomed to activating their prior knowledge when they read. Some of these students have inadequate prior knowledge. While all students have some prior knowledge about most topics they encounter in school tasks, they simply may not have enough to successfully read a particular text about that topic. Other students may have adequate prior knowledge, but are passive readers. They are accustomed to teacher-directed reading where the teacher and the text are information givers and they are receivers. These readers feel that what they know, therefore, is not important; only what the teacher or book says.

Teaching these types of students to read effectively requires that the teacher activate these students' thinking, teaching them to trust and rely upon their own internal resources when they read. At first, this is primarily an instructional task, that is, teaching students to activate what they know and to link that knowledge to information in a text. Using instructional strategies such as brainstorming can help students recognize what appropriate prior knowledge is and then pool their individual knowledge into a collective body of information. Similarly, teachers can use analogies to help students retrieve prior knowledge. For example, if students have trouble understanding volcanos, begin a lesson with a discussion of explosions.

Example

Teacher:

Today we're going to talk about volcanos, but before we do, let's talk about explosions. Does anyone know why that might be a good way to begin? (One student answers that when a volcano blows up, it looks like an explosion.) That's certainly one good reason. Does anyone know what causes an explosion? (Students struggle with various answers related to heat and pressure.)

OK, let's think about what happens to a tea kettle when the water inside it boils. (One student ventures: The steam comes out of the top.) Why? (Because the heated water starts producing steam that grows and expands until it trys to get out and that puts pressure on the top.) Absolutely correct. What do you think would happen if the steam could not escape? (Well, says one kid, there would not be enough room for the steam in the kettle, so it would probably explode or blow up.)

Well, do you think that a kettle of boiling water is like a volcano? (One student notes that probably boiling lava at the core of the volcano starts to get hotter and hotter and therefore produces gases that expand and blow through the top of the volcano.) That's right. But what starts the process? (Maybe it is some kind of pressure.) What kind of pressure might there be below the earth? (Maybe the ground is pushing up or something.) Yes, something like that is happening; but let's read the chapter and begin to see what happens to cause a volcano to erupt.

Over time, the teacher's instruction should gradually focus on teaching students to use prior knowledge as an individual reading or learning strategy. The teacher removes his or her direct support as students' use of their prior knowledge grows more proficient.

As students move toward independence, they learn to internalize and individually use their prior knowledge as a reading strategy. For example, students may skim a text, examine pictures, subtitles, and other text features for clues about the text. This skimming helps them predict what the text is about and how it is organized.

Example

Jeff turns to the chapter on *Rocks and Their Formation*, assigned by his science teacher. His eyes turn first to color pictures of different types of rocks. Some are smooth, some are ridged, and all are of different colors. Turning the pages of the chapter, Jeff looks at the big heading *Types of Rocks* and *Rock Formation.* There are pictures of buildings, marble statues, mountains, and the inside of coal mines. Having touched marble columns in the park, Jeff remembers how much he likes to feel the cool hard surface of marble, and wonders how it got that way. He wonders if marble is a type of rock. It must be, he thinks. Otherwise why would they have it in this chapter? Looking at the jagged edges of mountain, Jeff reads a caption that it is sedimentary rock and thinks of a visit to the lake and scraping his knee on a similar rock. He wonders if pieces of rock from a nearby mountain fell into the lake. There is a picture of all different layers of rocks, and labels on various parts. On a hiking trip with his mom and his sister one time, there was a wall of rock with all different colors and his mom told him that it was called *strata*. Jeff finds the word *strata*. At the end of the chapter, there are pictures of people studying rocks. Reading that they are geologists, Jeff wonders why geologists study rocks. Aside from occasionally being interesting (and hurting your leg on them), what good are they?

In this example, the student skimmed the text to be read, predicted what it was about, and how it was structured, constantly relating what he was gaining from those processes to what he already knew.

Helping students move toward independence in using prior knowledge means examining and rethinking your own teaching style. In fact, your own prior knowledge about teaching may come into question as you think about how to help students become more strategic readers. For example, you can apply reading strategies to your own teaching. "Skim" your own teaching routines. "Predict" how these routines could become more strategic. How could you incorporate your knowledge of prior knowledge into your teaching? What routines would you keep? Give up? You can use the five phases of instruction described in Unit 1 and on the next page to help you incorporate the prior knowledge strategy into your teaching of reading.

Phase 1—Planning

Instructional planning begins with making decisions about three classroom variables and the relationships among them:

1. Your *students* as readers
2. The *text* you will use
3. The *context* of your classroom, including goals and tasks you set for your students, how you organize your classroom, and the teaching methods you select

Your Students

There are at least two things to consider with respect to your students: (1) What prior knowledge they have about a topic, including not only concepts, but also organizational patterns? and (2) What prior knowledge they have about the reading process, particularly if and when they are using what they already know to construct meaning from text?

Regarding the first, if you judge that the students have little prior knowledge about a topic, you may need to elicit or build their prior knowledge before they read the text. This may involve asking them to brainstorm what they know about a topic, providing an analogy or discussing a similar phenomenon to make connections between familiar and unfamiliar information (e.g., comparing the circulatory system to a plumbing system, or providing easy-to-understand text to introduce a complex topic.)

The K-W-L teaching technique is a good method to help students activate prior knowledge they already have. What is K-W-L? It is a group instruction strategy, developed by Donna Ogle, that models the active thinking needed when reading expository text. The letters stand for three activities: *K* stands for helping students recall what they KNOW about a subject, *W* stands for helping students determine what they WANT to learn, and *L* stands for helping students identify what they LEARN as they read.

To use K-W-L, the teacher plans and produces a student worksheet that he or she uses in group instruction, in which students discuss and categorize what they already know and can expect to learn about a topic. Using the worksheet (see Figure 2), students write what they already know about a subject as well as categories or questions that they expect to find out about in the text. During reading, students use their worksheets to record new information as well as new questions that emerge. Finally students discuss and evaluate what they have learned from reading.

FIGURE 2

SCIENCE LESSON ON INSECT-EATING PLANTS

What We Know	*What We Want To Find Out*	What We Learned/ Still Need To Know
1. We know they eat insects because they need fertilizer.	If you had an insect-eating plant what would you feed it? Does it need water and fertilizer? How big is it? Where do they live?	I learned that it's small. It has red leaves, and it has a red center, and a sticky sweet-smelling scent that lures the insect. It closes in one or two seconds. It lives in a swamp or bog. It needs nitrogen and insects have it.

2. Categories of information we expect to use

A.
B.
C.
D.
E.
F.
G.

(*Teaching Reading as Thinking,* Teleconference Resource Guide, ASCD and NCREL, 1986.)

The second thing you need to consider about your students is their prior knowledge about the reading process. You should ask yourself what your students may or may not know about the concept of prior knowledge and the extent to which they use their prior knowledge strategically. How you teach will probably be quite different if they seem to be using their prior knowledge fairly effectively than if they do not.

How do you make these kinds of decisions? One way is to design a short assessment that provides you with clues about what students know about the strategy. Orally, or in writing, you can ask students explicit questions about their strategy knowledge and use. In the example below, the teacher uses an anticipation/reaction guide to assess her class's knowledge and use of prior knowledge before she begins a lesson on that topic.

FIGURE 2

PRIOR KNOWLEDGE SURVEY

Anticipation/Reaction Guide

Instructions: Respond to each statement twice: once before the lesson and again after reading it.
___ Write **A** if you agree with the statement.
___ Write **D** if you disagree with the statement.

Response Before Lesson		*Response After Lesson*
___	The prior knowledge strategy is linking what I know to new ideas in what I read.	___
___	My prior knowledge is always true.	___
___	The prior knowledge strategy does not always work for stories and poems.	___
___	I use the prior knowledge strategy before I start to read, but not while I am reading, nor after I finish.	___
___	What I already know about something can help me learn more about it.	___
___	A good way to begin using my prior knowledge is to quickly examine the text I will read.	___
___	When a text disagrees with what I already know, I check another source.	___

After teaching the lesson, the teacher has students respond to the same statements, comparing the pre- and post-instruction knowledge about prior knowledge. This is only an example. Later, as students learn more about using the strategy, teachers can make the Anticipation/Reaction Guide more sophisticated.

The Text

As you know, selecting a text is based on your purpose or goal for teaching. When your intention is to teach students what prior knowledge is, how and when to use it, and why it is important, then prior knowledge will be your topic and the text you use will be a vehicle for teaching it. Consequently, the text should be easy enough so that students can focus on learning the strategy rather than dealing with major comprehension problems in a difficult text. On the other hand, content should not be so easy that students become bored or do not learn how useful prior knowledge can be in helping them understand text when they face problems.

However, if your major purpose is to teach content and not strategies, then you will select a text that best deals with that content. Your teaching will guide students to use their prior knowledge as a means to read the text and therefore learn the content. In this situation, students may well encounter problems with comprehending the text. The concepts may be difficult, unfamiliar, and complex. They may need help with retrieving their prior knowledge and applying it to the text. You may find yourself planning for explicit instruction to help familiarize them with the text's content as well as structure.

Both your students and the text you select will help determine how you organize your classroom and the teaching methods you use. Typically, reading is taught in small, homogenous groups of students with similar reading abilities (as measured by standardized test scores). But is that the most effective way to acquaint students with use of strategies? Should the groups be heterogenous instead? Research has shown that, in mixed ability groups, poor students can learn from the modeling of their higher-achieving peers, and conversely, that high-achieving students can deepen and enrich their own learning by working with low achievers.

Researchers have also found that encouraging students to share their prior knowledge about a topic *and* about the process of reading is very important for helping students become strategic readers. One reason for this is that strategies reflect thinking processes, and talking about thinking makes it public, so that a student can examine the quality of his or her own thinking. Furthermore, students learn how others think which helps them understand different ways to approach reading and thinking about content.

Phase 2—Introducing the Strategy Through Explicit Instruction and Modeling

Researchers have found that explicit (or direct) instruction is an excellent way to teach students to be strategic. Explicit instruction means that you, the teacher, explain, demonstrate, and model what is needed to use a strategy. You ask:

- What is it?
- How do I use it?
- When do I use it?
- Where do I use it?
- Why is it important and helpful?

You might want to begin by discussing characteristics of good readers and techniques that good readers use to make connections between what they read and what they already know. Explain what prior knowledge is and show them when and where they can use prior knowledge in reading. Point out that they can use the strategy throughout the reading process. That is, when they read a topic they know a lot about, their prior knowledge will help them pick out important information and remember it, and when they don't know about a topic, they can use their prior knowledge to help them formulate questions or think of some possibly related topics.

You will also want to explain why prior knowledge is helpful. If they think about what they already know before and while they read, it helps them to see what's important and gives them cues for adding information to their prior knowledge. Also, using prior knowledge after reading will help them summarize, organize, and remember ideas.

One goal of explicit instruction is teaching students *how* to use their prior knowledge *before, during,* and after *reading.* Modeling, or talking aloud about what you are thinking and doing *before, during,* and after *reading,* is one very effective instructional tool you can use. Model for students how to look at the titles and pictures in a selection *before reading,* and relate them to what they already know. As you continue, predict and ask questions you want answered about the text. Modeling *during reading* includes checking your predictions, using your prior knowledge to deal with unfamiliar words and comprehension problems, identifying new information, confirming predictions, and making analogies. Modeling *after reading* includes summarizing, integrating with what you knew before, and planning next steps. This modeling is helpful because many students are simply not aware that they should take the time to do these processes and that, if done strategically, they will produce results in how much they understand when they read.

FIGURE 3

MODELING PRIOR KNOWLEDGE		
Before Reading	*During Reading*	*After Reading*
• Look at titles and pictures and charts • Talk about what you know • Predict content • Ask questions you want answered	• Check your predictions • Use what you know to define unfamiliar words and make inferences about unfamiliar content • Identify new information • Confirm predictions • Make analogies	• Summarize • Integrate what you knew before with what you read • Plan next steps

In the example below, an English teacher is modeling the use of prior knowledge for his students. The students have already been introduced to the concept of what it is, why it is useful, and when they will find it most helpful.

Before Reading:

activating prior knowledge about the content leads to questions about the new content

Today we're going to begin reading a biography of Mark Twain. Before we start the first chapter, I'm going to think about what I already know about him in order to prepare for learning new information. I know that he is an author and, as I recall, Mark Twain was not his real name but I can't think what the real name was. I wonder why he decided to change it and how he came up with his new name.

linking personal experience to content leads to questions about the content

I also know that Twain wrote a lot about the Mississippi River and with a sense of humor. I wonder if he grew up on the river or ever lived there later in life. My father and grandfather both had a good sense of humor; maybe that's where mine comes from. I wonder if Twain credits a member of his family for his humor and whether the biography will address that.

activating prior knowledge about text structure

I'm going to briefly look over the entire book, starting with the table of contents. That will give me an overview of how the story of Twain's life will be told. I know from reading other biographies that some tell you about the person's entire life and others just focus on the part for which they are famous.

linking prior knowledge about text structure to new text

I see by looking at the table of contents that there are ten chapters and the first is entitled, "The Early Years" so apparently this biography *will* tell about his entire life. Since most of what I do know about Mark Twain is about his adult life, I'm curious to read about his childhood. Perhaps it will answer some of my questions.

making a prediction based on text structure

During Reading:

Yes, that's his real name, Samuel Clemens. I know his real name wasn't Mark Twain and he was born in Missouri—in Florida, Missouri. I wonder how close that is to the Mississippi River. I think I'll look on a map.

confirming and checking predictions and questions

making an inference based on prior knowledge

It says here that Sam loved to tell jokes and play tricks. He claims that when he was only nine days old he pretended that his diaper pin was sticking him in order to get more attention. Come on, no one remembers what they did when they were nine days old. That must just be an example of his sense of humor.

AFTER READING

linking prior knowledge to new information using unanswered questions to make further predictions	In this chapter I learned about Sam's life through early adulthood. Now I understand why he wrote so much about the Mississippi River. It said in the chapter that when he was twenty-one he learned how to be a riverboat pilot. But this chapter ended with him still working on the boat. And it sounds like he really enjoyed it. I wonder why he gave it up to become an author. I still don't know. Maybe he was hurt or lost his job. I hope it will tell me about that in the next chapter. And in this chapter his name was still Samuel so I don't know when and why he changed it.

Phase 3—Guided Practice and Teacher Coaching

Moving your students to the guided-practice phase of the teaching cycle should be subtle. You neither want to confuse students by moving too quickly nor bore them by moving too slowly. Your informal assessment will help you decide when to shift to guided practice. In this phase, the teacher serves primarily as a coach.

First, you will probably review prior knowledge with your students using a new text, perhaps in a different genre, much as a coach might review an old play in a new game situation. After review, many teachers assign students to read several pages of text, asking students to pay attention to how they are using their prior knowledge, and then sharing (or practicing) their thinking processes with a partner or several students in small groups. This helps students verbalize their thinking and learn the varieties of ways their peers think as they read.

When students share their thinking processes, they see and hear what we mean when we say that reading is an interactive process of constructing meaning. Sharing also illustrates that reading is not easy; all readers — even good readers — sometimes experience comprehension problems. Sharing also permits all students to contribute to one another the ideas, values, and strategies they bring from their own experiences and cultures. But the main value of sharing is that it compels your students to think about their own thinking, often called metacognition (or "thinking about your own thinking").

As teacher and coach, you provide feedback and cues as needed. After students have completed their reading, you will probably conduct a discussion that focuses attention on how they used their prior knowledge. Or, you may ask students to conduct their own discussions in small groups. In either case, the goal is to get students to think and talk about their conscious use of prior knowledge when they read.

Phases 4 and 5—Becoming Independent

Once your students have practiced using their prior knowledge with familiar content and texts, then, based on your assessment, you can move them into unfamiliar content and texts. As this happens, you can provide students with many rich opportunities to apply and transfer the strategy in a variety of authentic reading situations. This transfer takes a long time and is based on ongoing assessment throughout all phases of instruction. Your assessment of students will take place through observation, asking questions, and especially *dialogue*. The goal is to find out how well your students are understanding and using prior knowledge.

Assessment will help you determine when to shift from direct instruction to guided practice and from guided practice to the independent phase. You can move ahead if they're ready, or re-explain and elaborate if they're not. Assessment involves probing students' thinking, asking questions such as, "Could you show me how you used your prior knowledge to understand that passage?" "What did you already know that made you think of that?" "How did what you already knew help you while you were reading?" "When did you use your prior knowledge for reading this story?" "How did you use the strategy?" "Was it easier for you to read this article because you used your prior knowledge?"

In conclusion, keep in mind that instruction in this and any other strategy is ongoing. When you teach inferencing, for example, you need to remind students of the importance of using prior knowledge. They need to see how using prior knowledge relates to what they know and have done in the past, how they can use it in the future, and how they can orchestrate it with other reading strategies. In fact, you and your students will find that the interaction and combination of all the strategies in the Strategic Reading Project are more powerful than any one of them used alone.

Q: What types of learning activities can I engage my students in before, during, and after reading? Which of these activities would help them learn how to use their prior knowledge?

A: Many students may not be aware of their prior knowledge, or they may have had limited opportunities in learning how to use it effectively. Before starting to read, they should engage in activities such as previewing the story, the title, and illustrations for any familiarities they can link to their existing knowledge. During reading, they can make inferences, anticipate characters, actions, and organize information using their prior knowledge whenever possible. After reading, students should reflect on what they read, how it was related to other readings or text, and their reactions. By using the directed reading lesson and modeling what should take place during reading, we can help students better understand the reading process.

As teachers, our motto should be "Never assume anything." This does not mean that we do not have high expectations of students, it means that we want to be sure that we don't neglect any aspect of helping students learn. Again, modeling the before, during, and after phases of the reading process for the students will enhance their utilization and understanding.

Q: As the teacher, I know that each of my students has some prior knowledge about something. How do I help them to realize the existence and usefulness of their prior knowledge?

A: It is true that every student knows something about something; it is also true that every student will possess different kinds of prior knowledge about various topics and subjects. There are a couple of techniques that can be used in making students cognizant of knowledge they may be unaware they have.

One technique is teacher-directed discussions in which the teacher probes the students' prior knowledge by asking general and specific questions that encourage students to focus on information stored in their minds. Putting this information on the board gives all students access to the collected prior knowledge of the class.

Another technique is to assign a topic; for example, on pollution. Divide the class into groups of fives, threes, or twos and have them brainstorm on the number of ways we contribute to pollution. The primary requirement of this activity is that every student must contribute at least one idea to the group effort.

Q: What do I do when my student's prior knowledge includes misconceptions or is irrelevant?

A: Students sometimes come up with misinformation that needs clarifying or information that is incorrect. One way to deal with this is to use a familiar analogy to help students discover their misconception. For example, in a lesson on reptiles, you may ask the class to name some reptiles. A student may incorrectly say a frog is a reptile because it's slimy and wet like a snake. You could ask that student why s/he believes a snake is slimy and wet. You can ask the class what other similarities of a frog and a snake they can think of.

You can then point out the important difference between snakes and frogs, explaining that frogs are amphibians because they spend part of their lives in water, and do not breathe through lungs as reptiles such as snakes do. Students can then proceed to find out more about reptiles and amphibians, their similarities and differences. Again, putting the information on a chart on the board helps all students remember critical information as they read.

When the students' prior information before reading is unrelated or slightly related to the text, you can use the text as a guide for identifying relevant information. For example, in your discussion about reptiles, you may ask what students already know about snakes. One student may say, "I had a snake once, and I had to feed it live insects and mice." You might say, "Well, that deals with a snake's feeding habits. Let's look at the chapter to see what our focus should be. What headings do you see?" Students look at the text and read *Characteristics of Reptiles, Where Reptiles Live, How Reptiles Reproduce,* and *Kinds of Reptiles.* You might say, "Snakes' feeding habits are very interesting, but to keep our focus, let's try to come up with what we know about these areas." The students may decide to discuss each section and talk about what they already know from how the text is organized. You can then record what they are saying in relation to the categories under *Reptiles,* for example, as part of the KWL method. Remember, the KWL method is uncovering what students already *Know,* what they *Want* to learn, and what they have later *Learned.*

Q: I always conduct a review with my students before they read. Isn't that the same as activating prior knowledge?

A: Not necessarily. Most reviews only ask students to go over what they learned previously or to remember everything they know about a topic. This is a small part of activating prior knowledge, but not all of it.

The *key* to activating prior knowledge is *linking* what is already known or experienced to information in the text. The *linking* has to be consciously pursued by the reader and/or the teacher. Pursuing this linkage involves a student thinking of prior information, or experiences, generating new questions, and seeking more information. You need to make it clear to students why you are trying to elicit their prior knowledge, and reinforce that the purpose is to link the information they already have with information in the text.

Consider the way that Antonio, a sixth grader, activates prior knowledge in reading a chapter in social studies on the industrial revolution. Antonio thinks of factories when he opens his book to the chapter on the industrial revolution. He sees a big picture of people working in a factory; they are young and old, women, men, and a kid that looks his age. "Did kids my age really work in the factories?" he wonders. He reads the paragraph next to the picture on child labor that talks about the long hours and low pay that many young people worked for. Antonio thinks that as hard as it is to go to school every day, he is glad that he is not working in a factory. He notices the big headings, *Before the Industrial Revolution* and *After the Industrial Revolution.* There is a picture of a woman using a big spinning wheel to make clothes in a house, in contrast to the picture of the factory. He reads that women often worked all day to make clothes for their families and communities. Antonio thinks, "My mom couldn't do that. That would take too much of her time. She wouldn't be able to work at the phone company, and if she did not work, my brother and I wouldn't have the nice things she buys for us. I wonder if they had phones back then?"

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Provides background reading on why "starting with what the kids know" appears to be a simple concept but, when translated to practice, is in reality a very complicated and sophisticated concept. Provides an in-depth description of PReP (Pre Reading Plan) which allows teachers to both activate appropriate background knowledge and at the same time assess the depth and breadth of students' background knowledge.

Ogle, D. S. (1986). K-W-L group instruction strategy. In A. S. Palincsar, D. S. Ogle, B. F. Jones, and E. G. Carr (Eds.), *Teaching reading as thinking* (Teleconference Resource Guide) (pp. 11-17). Alexandria, VA: Association for Supervision and Curriculum Development.

Elaborates on the importance of prior knowledge, group learning, and engaging all students through writing activities. Provides a model lesson that involves all students before, during, and after reading. Before reading, students brainstorm, categorize their ideas, and make predictions and raise questions about what they will (and want to) learn from reading. They read to see if their predictions are true, to answer their questions, and to raise new questions. After reading, they reflect on what they learned and on what they may still want to learn.

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Reviews the research on prior knowledge and discusses its implications for practice. Suggests ways teachers can observe students' prior knowledge and creative activities supporting students' use of their prior knowledge in making meaning.

Berliner, D. (1986). Use what kids know to teach the new. *Instructor, 95*(7), 12-13.

A brief article discussing the importance of connecting what you are learning to what you already know. Two examples are presented. The first is a research study showing that making these linkages helps adults (in this case preservice teachers and nurses) learn mathematics. The second is a school in Hawaii that had little success in raising students' reading achievement scores *until* instruction was connected to the students' culture.

Note: Content in the Unit 2 Essay was drawn from the above references

DRAFT

3 UNIT

Inferencing

Unit Overview

Contents:

A. Suggestions for Staff Development Activities

B. Unit Essay

Focus —Introduces how individuals infer and the importance of inferential thinking to reading comprehension.

1. How do readers infer information?
2. Why is inferring information critical to reading comprehension?
3. What are some guidelines for implementing inferential comprehension instruction?
4. What are some strategies to teach inferential compre hension explicitly?
5. What are some strategies to reinforce inferential thinking?

Reflections — Answers to questions that teachers may have about how to integrate inferential comprehension instruction into the classroom.

C. Annotated Bibliography

UNIT OVERVIEW

In this unit of the Strategic Reading Project, we introduce you and your school to methods of implementing effective inferential comprehension instruction into your classroom. This unit answers five questions about inferential comprehension:

1. How do readers infer information?
2. Why is inferring information critical to reading comprehension?
3. What are some guidelines for implementing inferential comprehension instruction?
4. What are some strategies to teach inferential comprehension explicitly?
5. What are some strategies to reinforce inferential thinking?

As in other units, this unit includes a Focus section that introduces the concept of the importance of inferential comprehension knowledge in an everyday learning situation and a Reflections section that includes questions about how to implement effective inferential comprehension learning strategies in your classroom and school.

The staff development activities below are suggestions for how you and your colleagues might use the SRP materials.

Suggestions for Staff Development Activities

Building A Knowledge Base

- Read the Unit 3 Essay, consult the Annotated Bibliography and select one or two articles to read. Discuss the readings with other teachers.

Before you read...

- Reflect on the thinking processes you use when inferring information during reading.
- Identify reasons why it is difficult for readers to infer information.
- Why are some reading materials more conducive to inferring information than others?
- How do you help students learn to infer information when reading?

After you read...

- Summarize the ideas in the unit. Compare your new understanding of what consititutes effective inferential comprehension instruction with your previous beliefs.

- Analyze some inferential comprehension strategies that are used in your school. Do they clearly mirror the inferential thinking processes?
- Select some effective inferential comprehension strategies that you intend to use in the classroom.

Observing Models and Examples

- Listen to the SRP Audiotape(s) for Unit. Discuss them with colleagues. Observe classroom demonstrations of teachers using inferential comprehension techniques. Discuss and write down examples of the following:
- Introducing the inferential comprehension strategy.
- Guiding students to recall and use relevant background knowledge to infer information.
- Using text information to develop inferences.
- Monitoring the appropriateness of the inference for the context.
- Compare and contrast the strategies used in the classroom, focusing on the reasons for choosing the strategies to achieve specific and varied goals.

Reflecting on Your Practice

- Brainstorm alternatives to the inferential comprehension strategies that you have read about that you think would work in your school.
- Analyze an inferential comprehension lesson that you or a colleague have used and evaluate its effectiveness for mirroring and practicing inferential comprehension.
  - Does a sufficient amount of inferential comprehension instruction occur in your school?
  - Is there an effort to integrate inferential comprehension instruction in all reading activities?
  - Is inferential comprehension instruction practiced in all content subjects?
  - Is there an effort to match learning strategies with instructional goals, student's needs and abilities, and the difficulty of the materials.

Changing Your Practice

- Observe another teacher using an inferential comprehension strategy or invite a teacher to model a strategy in your classroom.
- Evaluate new inferential comprehension strategies to ensure that they help students integrate background knowledge and text information when they construct inferences.

- Compile a file of inferential comprehension strategies that can be used to mirror and practice the inferential thinking process.
- Rewrite or modify a textbook inferential comprehension strategy so that it reflects effective instructional principles.
- Create lessons incorporating inferential comprehension instruction in a variety of content areas.

Gaining Expertise

- Model the teaching of an inferential comprehension lesson in another teacher's classroom.
- Coach a colleague who is learning to teach new inferential comprehension strategies.
- Collaborate with a colleague to develop lessons inregrating inferential comprehension strategies in his or her classroom or in a specialized content area.
- Denonstrate an inferential comprehension strategy in a staff development meeting.
- Design a demonstration lesson that teachers can use or adapt in their classrooms.
- Create a resource book of inferential comprehension strategies.

ESSAY

FOCUS

Angela's mother was in a hurry to get to the store. Angela was more interested in talking to the friends she met on the way. She kept stopping to say hello to everyone she knew. Finally, she heard her mother call back to her, "Angela, hurry up! You're moving at a snail's pace today."

If you were asked the question, What means of transportation was Angela using, The immediate and universal response would be: her feet — she was walking.

How did you derive that answer? Some of us would think that it was stated in the text because the answer is so obvious. This conclusion is not correct because nowhere in the text does it state explicitly that Angela was walking.

Others would say they inferred the answer from text information. They are partially correct because they actually used a combination of text information and personal knowledge to infer the answer.

A reader might reason in the following manner. Angela couldn't be riding in a car because her mother would be driving and have control of the speed. She would not have to call back to her unless she was riding in a stretch limosene. Riding a bike or roller blading would be possible, but not likely responses, because it would be difficult to keep stopping to talk. Walking, therefore, would be more likely. How was this series of reasoning possible? The reader relied on his/her prior experiences in similar instances to suggest an array of methods of travel and then selected the most logical answer that would make sense with the constraints of the text information.

Now, read the following excerpt.

Jim went to Ciao's, his favorite Italian restaurant. He ordered lasagna. When the waiter brought it, Jim was so enraged that he left without leaving a tip. He even forgot his umbrella.

This vignette immediately brings a variety of impressions to the reader's mind. Most readers are readily able to understand and empathize with poor Jim's situation. We recall unpleasant restaurant scenarios, where we have waited an interminable length of time for our food and when it finally arrived the meal was cold and unappetizing. Or, perhaps, the food was tasteless or, instead of the original order, we received a huge mound of spaghetti with clamsauce, which activated every allergic response in our body. All in all the experience that we recalled did not evoke our fondest memories.

If we were asked to respond to the following questions, we would have little difficulty in developing answers.

Why did Jim go to Ciao's?
Why was Jim angry?

Notice that your answers to the questions are not explicitly stated in the text, but rather they are implied. You, the reader are expected to infer unstated relationships about the events in the scenario, not necessarily by using text clues, but by using similar, prior experiences to construct appropriate answers.

In this instance readers rely on relevant background knowledge to fill in and elaborate on text information to get a clear idea of what probably happened in the restaurant. Since not all information is stated in text, the reader is constantly expected to make inferences when reading. In this case it was fairly easy to make the inferences. However, if we added the following qustions and asked them of a student who had only eaten at fast food chains, the answers would probably be quite different from our own responses.

Who seated Jim at his table?
When did Jim pay for his meal?

Responses to the first question would conceivably be: You seat yourself or use the drive through and eat in the car. A hostess or Maitre de is unheard of by a reader with such limited dining experiences. A response to the second question would be: When you order your food you pay or there is no meal. Charging dinner is not yet in this reader's lifestyle or data bank of experiences.

As mature readers we automatically infer information and because of this, as teachers, we are often unaware of the frequency of inferences we require our students to make. Some of the inferences are low level and fairly easy to make. Other inferences are more difficult and require skill and effort to construct responses. This is when we hear the frequent laments: "I can't find the answer' or "The answer's not in the book". Although students infer in daily situations, (they know what will happen if they break curfew) they do not automatically transfer this ability to reading situations (Paris & Lindauer, 1976). As educators we must, therefore, be aware of the number and types of inferences we expect our students to make while reading and, as well, be cognizant of activities that will help them learn to infer information.

How Readers Infer Information

Inferring requires knowledge of the relationship between two or more objects or events. The relationship is not directly stated and must be constructed by the reader. Students are required to infer the relationship using three steps: identifying relevant information from previous knowledge, using text clues to help establish relationships and after the inference is made, checking to make sure that the inference makes sense in the context.

Background Knowledge

A reader's background knowledge acts as a data base from which to draw relevant experiences to infer information. Researchers describe these experiences as contained in schemas or scripts which are special types of generic knowledge structures that correspond to frequently enacted activities (Shank & Abelson, 1977).

For example, when we read the previous excerpt about a restaurant, our restaurant script initially conjured up in our minds an image of a place where we go to enjoy a relaxing meal, perhaps in a romantic setting, and, best of all, doing so without having to wash the dishes. Because of certain common understandings about restaurants we are able to fill in missing information and elaborate on incomplete information that is not stated in the text.

This common schema guides our understanding of text and permits us to make inferences based on common expectations about what could happen in a restaurant, even though they were not stated. When we read that Jim was angry, that information was consistent with our expectations of what could happen in a restaurant to make us angry and therefore we were able to respond to the questions. If we (like our imaginary student) had only been to fast food restaurants, it would be difficult to develop the same answers that we, as experienced readers, were able to develop. At a fast food restaurant there is no waiting for food, and though it may be unappetizing to some of us, it usually is hot.

Scripts are constant in that we share common experiences about characteristics of the script; in addition, they are flexible and allow for inclusion of new information. After reading the passage about the restaurant, a young reader can add on to his limited restaurant script other types of dining establishments, including restaurants where one is served meals and some where a chef cooks meals at tableside. Expanding concepts of a restaurant script is one way to enable a reader to infer more easily when similar information is encountered again.

Text Information

In order to infer information readers need to act like detectives and look for clues in the text that will help them interpret relationships. Clues may be located in surrounding text or they may be far from relevant information in different paragraphs or sections and therefore, more difficult to discover. After clues are noted, students must sense the relationship among these ideas and to the relevant information. These steps require selection, analysis and integration of information.

Some students are unaware of how to execute these steps and build on the clues to reach an inference. We are all aware of acquaintences who are constantly surprised at the outcome of a mystery story and others who can solve the case half way through the book. The successful sleuths are able to identify important clues, establish relationships among the information, hypothesize solutions and check the hypotheses against the clues to determine the correct response for the situation. To become successful at making inferences we must become sensitized to the steps and be able to use them in a variety of reading situations just as a good detective does.

Monitoring

Monitoring is an essential element of strategic reading. A strategic reader controls his/her thinking processes while reading by being: aware of a lack of understanding when it occurs, knowledgeable about how to use strategies to fix up the void and able to recognize when the strategies are used appropriately. The ability to monitor ones thinking is essential to inferential comprehension because a reader must be able to tap background knowledge and use text clues to formulate valid inferences and then check the consistency of the inferences with the passage context. If a reader is unable to do so any one of the steps, the inferential process breaks down.

The Importance of Inferring Information

Inferring information is an important skill because it is required in most reading situations. It is an overarching thinking process that is the foundation of many critical reading skills that competent readers perform unconsciously and consistently in their daily activities. For example, inferential comprehension is the basis for developing the main idea of a text, drawing conclusions about text information, and thinking about text information in a variety of patterns such as compare/contrast, cause/effect and problem/solution. Without the ability to select and relate pertinent text information and background knowledge and check the appropriateness of the relationships with the text content, a reader would be unable to comprehend text accurately.

Previously all the examples listed, were taught as unrelated skills to be learned through constant drill and practice with worksheets. Readers were directed to "Find the Main Idea" or "Draw Conclusions" using small segments of text written for this purpose. Learning was apparently believed to occur through osmosis because there was never instruction on how to develop an appropriate conclusion or to construct a main idea (main ideas are usually developed, not found in the first or last sentence of text as suggested by some practice books). Rarely could one find any indication that all these specific reading skills were based on the inferential thinking process which, in turn, could be learned and applied to a variety of reading situations.

Inferential Comprehension Instruction

There are several general instructional rules to follow when teaching students inferential comprehension strategies. First, students must learn to use relevant previous knowledge to understand text. Students often are accustomed to finding answers and information in text without drawing on inner resources to aid comprehension. In addition, students are often unaware that different text interpretations can result from the way in which a reader's experiences affect his or her view of the text.

Students, therefore, need practice in associating prior knowledge with text, contemplating a variety of interpretations of text and discussing why some interpretations are more appropriate for particular contexts. Activities such as discussing proverbs and completing analogies demonstrate to students the importance of background knowledge in interpreting text and choosing appropriate responses based on the limitations imposed by context.

Second, as students locate and use relevant text blues to understand passages, they must compare the information from the text with previous knowledge to become aweare of how the combined knowledge limits the appropriate interpretations that can be made.

Third, as students increase their ability to infer text information, they must progress from simple to complex passages. The ease with which students can draw inferences from text dpends on the number of pertinent clues in the text and the distance of the clues from the point of inference In addition, the number of distractors contained in the text also affects comprehension. Distractors are plausible but irrelevant ideas that interfere with identifying central concepts. Students need practice in identifying distractors and determining why they irrelevant.

Fourth, students need to become cognizant of the reasoning processes that competent readers use to infer information. Competent readers must "think aloud" and model the reasoning processes they use so that others may learn from the public demonstration and sharing of these skills.

Public sharing involves many elements. Teachers must explain why, how and when to use the thinking processes. (Paris, Lipson & Wixson, 1983). In addition to the explanation, modeling the inferential thinking process is necessary so that students can clearly see how to do it. Modeling can be demonstrated by the teacher and peers. Students must then practice the reasoning procedures in two stages. First the student receives teacher support when they practice the steps and then responsibility is gradually released to the student to continue independently as inferential thinking is extended and refined. Practice occurs in a variety of situations so that the student can transfer the reasoning skills to different contexts.

Strategies to teach inferential comprehension

Comprehension is impeded when students are not able to use prior knowledge or text clues to infer information and monitor the accuracy of their inferences. Strategies are actions that are deliberately selected and performed by the reader to achieve specific goals. It is the purpose of inferential comprehension strategies to help the reader integrate relevant information from text and background knowledge and evaluate the appropriateness of the inference for the context.

As strategies are applied over time, they become skills that readers use regularly, flexibly and often unconsciously. Strategies frequently are recursive in nature and applied throughout the reading process. Some strategies, however, are used more intensely during one of the three stages of the reading process: before, during and after reading (Palincsar, Ogle, Jones & Carr, 1986). The following segment presents three strategies that clearly mirror the inferential process and the roles that background information and text clues play in the thinking process. In addition, this segment explains selected strategies that support inferential comprehension during various points of the stages of the reading process.

The Inferential Strategy (Weaving)

Hansen, 1981, was developed to demonstrate visually to students the important role that the combination of previous knowledge and text information plays in the inferential process. Designed for narrative text, the strategy encourages readers to make inferences through predictions by comparing their life experiences to events that might occur in the story. They learn to build bridges among information by linking their previous knowledge with story concepts. Procedures:

Before Reading:

1. The teacher introduces the strategy explaining that new information is best understood when it is integrated or woven into previous information that is stored in our brains.
2. The teacher discusses one of the main ideas in the story. The teacher should ask a question that relates one central concept from the story to some possible previous experiences of the students'. Each student's oral responses to the question are recorded on an individual strip of gray paper representing the student's brain containing the previous knowledge base.
3. The students are asked to hypothesize a similar situation that may occur in the story. These hypotheses are discussed and written on a strip of contrasting colored paper representing new knowledge.
4. The first two steps are repeated for two more main ideas taken from the story. The students are reminded each time how they are relating new information to the old.

During Reading:

5. Students read the text for understanding.

After Reading:

6. As a final step students answer the teacher's inferential questions about the story relating themto their predictions and experiences. Students then weave all the strips of paper together to gain a visual understanding of how previous knowledge and text information must be integrated so that each reader can draw on that combined knowledge to make appropriate inferences and comprehend text.

QAR: Question Answer Relationships

The QAR (Question Answer Relationship) strategy was designed to help students clarify the location of different sources of information available for answering questions (Raphael, 1984). Sources of information can be found in the text when information is explicitly stated ("right there") or when information is text implicit—inferences are made from information combined from different parts of a text, ("think and search"). Information can also be found in the reader's knowledge base script implicit ("on my own") or, alternatively, from the reader's knowledge base in conjunction with text information ("author and me"). The QAR strategy differs from Hansen's Weaving strategy in that QAR specifically trains students where to look for the four sources of information to infer answers while the Weaving strategy focuses on the importance of integrating text information and previous knowledge. Procedures:

Before reading:

1. Using a chart or overhead, the teacher explainsthe difference between "In the Book" and "In the Head" categories. Only "Right There" questions are used to demonstrate text based information. Follow with a series of questions to help students decide which category the question fits.

In the Book	In my Head

2. Explain and model the two subcategories for In the Book questions. "Right There" questions have answer that are stated explicitly within a single sentence in the text. "Think and Search" questions have answers that are stated explicitly but the reader is required to put the information together from different locations in the text.

In the Book

Right There | Think and Search

3. Explain the subcategories for "In my Head" questions. Author and Me questions have answers that are not in the story. The reader has to use his/her own experience to decide on an answer.

In the Book

Right There | Think and Search

During Reading:

4. Practice answering QAR questions from each category.

After Reading:

5. After students understand the categories and have sufficient practice in identifying them, students can practice writing their own questions for each of the categories.

Inferential Training Technique

The Inferential Training Technique (Carr, Dewitz & Patberg, 1989) helps students infer information while improving their comprehension and comprehension monitoring. Its components include a modified cloze procedure to introduce and model the strategy and a self-monitoring checklist to transfer the strategy to new situations. The modified cloze exercises present a clear model of the inferential process for students. The exercises focus attention on text clues, and relating text information to prior knowledge. In order to fill in the cloze blanks, readers activate prior knowledge and look forward and backward in the text for syntactic and semantic information to draw plausible inferences. The procedure helps the reader predict appropriate words while attending to units of text larger than words.

After feeling comfortable with completing cloze blanks, the students apply the same underlying process to answering inferential questions. The reader becomes accustomed to looking at text carefully, searching for information across text and keeping background knowledge in mind as he or she integrates information to make inferences.

The Inferential Training Technique is conceptually similar to Raphael's QAR strategy. It differs from that strategy in that it presents a more explicit model of the inferential process of relating information from various sources to answer questions. Thus, the strategy is valuable for readers who have difficulty with integrating background knowledge and text cues to infer information. Procedures:

Before Reading:

1. Discuss the purpose of ITT and train students how to use the text and background knowledge clues to fill in cloze blanks using individual sentences. Students use a self-monitoring checklist to remind them of the reasoning processes that they should use to inferinformation. The questions on the checklist suggest that students: read further and search for "forward clues," review text already read and find "backward clues," think of "background knowledge clues" and combine them with text clues to infer information. Check to ensure that their answers make sense in the context.

2. The teacher should display a sentence on the overhead. An important word is omitted.

   The car skidded out of control and crashed through the railing over the ____________________.

   Students brainstorm possible answers which are listed on the board. The teacher should ask the students what they used for clues, and should select the best answer from the list. After explaining why a particular answer is best, the teacher should make it clear that the students were relying on their past knowledge to fill in the blanks as there were no other clues.

3. The same sentence is done as a group, but this time a forward clue is added to it.

   The car skidded out of control and crashed through the railing over the ____________________. The boat below was halfway under the bridge and missed being hit.

   Following the same procedure, the teacher makes clear that the students combined their past experience and a forward clue to infer the missing information.

4. The teacher should repeat the procedure used in the first step but should have the students fill in the blank on their own first and compare answers orally.

The girl ran to catch her dog and fell in the ______________.

Again the teacher should stress that the students are using past knowledge to fill in the cloze blank.

5. This step should follow the same procedures as the others. It is done by the students individually first and then discussed orally.

It had rained and there was still no grass by the new house. The dogs were rolling in the mud and spreading dirt everywhere. The girl ran to catch her dog and fell in the ______ ____________________.

During the discussion the teacher should make it clear that the students used a combination of background knowledge and a backward clue to infer information.

6. Explain to the students that they can apply the same thinking processes they used to complete cloze passages to answering questions. Some answers are stated in text. Most answers, however, have to be constructed from clues in the text and background knowledge.

Whenever they develop answers to questions they should use the reminders on their checklist to ensure that they have carefully looked for all available clues to infer answers that make sense in the context. Teachers should ask inferential questions based on assigned text and have students explain how they inferred information to construct their answers until they become proficient in the process.

The following is a portion of a transcript from a lesson using the Inferential Training Technique in a fifth grade classroom. Note how the teacher helps students practice the inferential thinking processes through use of previous knowledge and text clues. Self-monitoring is internalized as students identify the type of clues they used to derive the information for their answer.

Note: The teacher reviews information learned in the previous lesson to activate knowledge that will be useful for understanding new information.

Example

Teacher:

Let's look at our structured overview and review what we covered yesterday. We read about explorers who came over and had part in the founding of Canada. If we look at the English explorers, we can see that Cabot had dealings in the area of New Foundland off the coast of Canada.

French explorers had a stake in this land as well. The Gulf of St. Lawrence was explored by Cartier. Champlain started a settlement in Quebec.

Note: The teacher has the students practice finding "backward clues" from previously read text and previous knowledge to infer answers to questions he has posed.

Example

Teacher:

Lets stop reading for a moment. I'd like to ask you why the Railroads were important to Canada's settlers?

Student #1:

So they could get from place to place.

Teacher:

How did you get that answer?

Student #1:

Previous knowledge.

Student #2:

'Cause it's hard to get from place to place.

Teacher:

How did you get that?

Student #2:

A "backward clue" from what we read before.

Teacher:

Very Good.

Note: The teacher encourages the students to extend their answers.

Example

Teacher:

Why did so many immigrants come to Canada after World War II?

Student #1:

Because the countries in Europe were just recovering from the war and they needed to be safe. Background Knowledge.

Teacher:

Great! You used background knowledge. Anyone else?

Student #2:

They had been fighting and there weren't many jobs. There weren't welfare benefits and food. They wanted to get away from the battles and problems so they could start over.

Example

Teacher:

How does it feel to be so smart? How did you come up with that response?

Student #2:

Background knowledge.

Teacher:

Why did so many Chinese and Japanese settle in British Columbia?

Student #3:

I think we need a forward clue.

Teacher:

We might need a forward clue, but I think we have enough knowledge to figure it out.

Student #4:

North Korea and South Korea got in a fight with Japan and China and Korea took over Japanese and Chinese settlements.

Teacher:

That's one reason.

Sstudent #5:

China and Japan were hard hit in World War II so they left.

Teacher:

O.K. But why did they settle in British Columbia instread of Quebec?

Student #5:

Because not many people live there.

Teacher:

That may be one reason. Why not New Brunswick? Let's look at the map. Where is China?

Student #6:

It's closer. They wouldn't want to go all around Canada to get to Quebec. And also it's along the coast. The Japanese used to fish so they would go to the coast.

Teacher:

How did you figure that out?

Student #6:

By looking at the map and previous knowledge.

Note: Students use a "forward clue" requiring further reading to infer information to develop an answer.

Example

Teacher:

Let me ask you this. What other events stimulated the growth of Canada?

Student #8:

We need a forward clue.

Teacher:

I think you're right. Let's read a little further and when we think we see the information that will help us answer the questions, let's raise those hands in the air.

Student #9:

They found lots of gold by this lake.

Teacher:

All right! That's one. But I said events.

Student #10:

There wasn't much gold so people stayed and did otherjobs like mining.

After students learn the procedure they only have to identify clues if other students are unable to follow how they developed their answers. In this segment of the transcript students were proficient enough that they didn't have to specify the exact phrase from the text they used to develop their answer. If students were confused about which piece of information the student used, the teacher would ask the respondent to repeat the exact phrase and not merely identify it as a "backward clue".

Strategies which reinforce inferential thinking

Directed Reading Thinking Activity(DRTA)(Stauffer, 1969) is a strategy that is used to learn procedures for inferring information, justifying responses and monitoring comprehension. Students draw on previous knowledge and text information to hypothesize what the text is about. Students monitor their thinking by providing a rationale for their predictions. As students read the text, predictions are either verified or changed. In this way inferential comprehension is practiced and supported throughout the reading process. Procedures:

Before Reading:

1. After previewing the title and organization of the text, the teacher encourages students to make predictions based on their prior knowledge by asking two questions: What is the text about, and Why do you think so?

During Reading:

2. Students read to reject or confirm their predictions.

3. Students make additional predictions about subsequent parts of the text, read designated passages and continue to confirm or reject the predictions.

After Reading:

4. Discuss the important text concepts and emphasize how predictions were verified or altered as they gained information.

The role of the teacher is to accept student predictions and only supply information when there are misunderstandings. The teacher is also responsible for previewing the text to choose appropriate stopping points to clarify the predictions. Throughout the reading passage, students are continuously inferring information to make predictions and clarifying the accuracy of their guesses.

Pattern Guides or Frames (Vacca &Vacca, 1989) are organizational outlines that represent the different types of logical connections among text information. The guides help students find patterns in the text that prepare them to think about information in a particular way. For example, a Compare/Contrast Guide encourages students to view and infer information according to this method of thinking. Students complete the guide and are able to draw logical inferences about the selected concepts and their relationship to each other. The most predominate patterns in expository text include: compare/contrast, cause/effect, problem/solution, time/order and ennumeration. The guides not only foster and support inferential thinking but also improve comprehension and retention of information. In addition, the guides can be used to develop questions for studying and as an outline for summaries. Procedures:

Before Reading:

1. The teacher reads the text to determine the predominant structure and select the central concepts to emphasize.
2. The teacher constructs a frame which will guide the students to determine the relationships among the concepts and reflects the organizational pattern to be highlighted.
3. Introduce the topic and share the guide with the students. Discuss the organizational pattern the guide or frame is emphasizing.

During Reading:

4. Students read the text focusing on the information necessary to complete the frame. As students complete the frame, they infer the targeted relationships among the concepts.

After Reading:

5. The information in the frame can be used as a basis for discussion, to develop questions for review and act as an outline for a summary.

Figure 1 is an example of a Compare/Contrast Pattern Guide completed by a middle school student. After the student completed the guide, the student used it as an outline to write a summary. Notice that pretaught vocabulary words were included in the summary.

FIGURE 1

Vocabulary
(lure, bait, prey, adapt, environment, victim, scent , hinge, blend)

ORGANISMS	ENVIRONMENT	METHODS OF TRAPPING
Anglerfish	Water	• Rods and bait for luring • Blends with ocean floor to catch prey
Ant Lion Larva	Land	• Digs Funnel-Shaped Pit
Spider	Land	• Spins Web with Sticky Threads
Venus Fly Trap	Land	• Sweet Scented Leaves to attract prey • Hinged leaf with teeth snaps shut to to trap prey

Organisms that live in water and on land have adapted to their environments and use different methods for trapping prey. The Anglerfish lives in water and catches food by using rods and bait for a lure. It blends in with the ocean floor and waits to catch its victim. The ant lion larva lives on land and digs a funnel-shaped pit to catch its prey. The spider also lives on land and spins a web to catch victims with its sticky threads. The venus fly trap grows on land and uses sweet scented leaves to attract its prey. A hinged leaf with hair like teeth snap shut and traps the victim.

Literary Report Cards (Johnson & Louis, 1987) create an opportunity for students to grade book characters on specific traits and behaviors. The format, based on a school report card, contains space for the subject (characteristics such as leadership, humor), grade (A-F), and comments to support the grade. Both identification of subjects and development of comments to support the grade require a high level of inferential and critical thinking. The Literary Report Card is an extension activity completed after reading a story. See Figure 2 for an example of a Literary Report Card developed in a sixth grade class. Procedures:

Before reading:

1. Use activities to activate background knowledge and set a purpose for reading.

During reading:

2. Read the text for comprehension.

After reading:

3. Students decide on a major story character they would like to evaluate.

4. Students identify "subjects" they will use to grade the character. If help is needed to formulate a label for the trait the teacher or peers can provide it. For example, if a student described a character as always investigating things, the teacher suggests a grade be given for curiosity. As students observe the teacher modeling the process, they learn the procedure.

3. Students can complete report cards for several characters from the same or different books and compare their subject ratings. This strategy can be also used to rate characters from content subjects.

FIGURE 2

LITERARY REPORT CARD
Shadows on the Pond

SUBJECT	LETTER GRADE	COMMENTS
Friendship	B	Jill and Migan were best friends all their lives, but when Jill met Ryan she spent more time with him and less with Migan. Jill still cared for Migan, especially after her accident.
Honesty	C	She only lied toigan once in her life and that was about Ryan, but she was dishonest with her parents often about the pond.
Leadership	C	Jill had good idea, but Migan usually put them into action. She also followed Ryan's plans rather than her own.
Helpfulness	A	She often helped Migan feed the animals and do her chores. She helped Migan's mom by getting Migan to read. Plus she tried to help the beavers in the pond and save Naomi from the flood.
Determination	A	Jill did all she could to save the beaver pond. She even risked her life.
Courage	B-	She had courage as long as someone was with her. When she was alone her imagina tion took over and she got scared.
Sensitive/Caring	A+	She cared very much about the beavers, and cried when she found one dead. She worried about her mom and dad getting back together and felt very bad when Migan broke her arm. she tried to warn Ryan whenhe was in danger because she cared about him and she really felt awful about Naomi after her accident. He gave Naomi her favorite childhood doll.

A = Outstanding **B** = Good **C** = Satisfactory **D** = Needs Improvement **F** = Failure

Reciprocal Teaching

Reciprocal teaching (Palincsar, 1986) is a powerful comprehension strategy because it incorporates four strategies that have been proven successful for increasing critical thinking, comprehension and retention of text information. Reciprocal teaching takes place in the form of a dialogue between teachers and students as they read segments of text. The teacher and students take turns assuming the role of teacher in leading the dialogue. The dialogue is structured by use of four strategies: summarizing, question generating, clarifying and predicting.

Each of these strategies supports inferential comprehension in a specific way. Summarizing gives students the opportunity to identify and infer relationships among concepts and integrate the most important information in the text.

Question generating requires students to identify which information is important enough to provide substance for a question. They learn to ask questions in which they must infer and apply new information from the text. Students can self-test to monitor the appropriateness of the question as well as their ability to answer the question.

Clarifying, a self-monitoring skill is particularly helpful to students who have difficulty with comprehension. They come to realize that various text factors, such as new vocabulary, unclear referent words or difficult concepts, may make the text difficult to understand. Students assume responsibility for their understanding and take steps to restore meaning. Predicting requires the student to recall relevant background knowledge about a topic and set a hypotheses about what the author will discuss in the text. A purpose for reading is created as students read to confirm or disprove their hypotheses. Students link new knowledge with previous knowledge as they infer information during reading to refine their predictions. Each strategy reinforces inferential comprehension as students monitor their thinking and construct meaning from text. Procedures:

Before reading:

1. Discuss how the procedures in the strategy will aid comprehension. Introduce each of the four strategies to the students on separate days so they can practice each one separately. The teacher models the procedure and turns over responsibility for the dialogue to them.

During reading:

2. Use each strategy as the text is read. The adult teacher calls attention to the title and asks for predictions based on the title. The teacher assigns a segment of text and either leads the dialogue (for initial training) or assigns a student teacher.

3. The students read the section silently.

4. The assigned teacher asks a question, then summarizes, clarifys information and offers a prediction for the next segment of text.

5. The adult teacher provides guidance necessary for the student teacher to complete the preceeding activity through a variety of techniques.

   Prompting: What question do you think a teacher might ask?
   Instruction: Remember a summary isa short version, it does not include too many ideas.
   Modifying the activity: If you are unable to think of a question,summarize first.
   Peer response: Who can help with this one?

6. Group members can supplement information.

7. The adult teacher provides praise and feedback for the student leader, modeling strategies that need attention.

After reading:

8. Discuss the passage and/or use supplementary activities to integrate important information.

The following is a portion of a transcript taken from a reciprocal teaching lesson to illustrate the reciprocal teaching procedure.

Example

Student #1:

My question is, what does the aquanaut need when he goes under water?

Student #2:

A watch.

Student #3:

Flippers.

Student #4:

A belt.

Student #1:

Those are all good answers.

Teacher:

Nice job! Ihave a question too. Why does the aquanaut wear a belt? What is so special about it?

Student #3:

It's a heavy belt and it keeps him from floating up to the top again.

Teacher:

Good for you.

Student #1:

For my summary now. . . . This paragraph was about what the aquanauts take when they go under the water.

Student #5:

And also why they need those things.

Student 3:

I think we need to clarify "gear."

Student 6:

That's the special things they need.

Example (cont'd. from page 25)

Teacher:

Another word for gear in this story might be equipment, that makes it easier fot the aquanauts to do their job.

Student #1:

I don't think I have a prediction to make.

Teacher:

Well, in the story they tell us that there are "many strange and wonderful creatures" that aquanauts see as they do their work. My prediction is that they will describe some of these creatures. What are some of the strange creatures that you already know about that live in the ocean?

Student #6:

Octopuses.

Student #3:

Whales!

Student #5:

Sharks!

Teacher:

Listen and find out. Who will be our teacher?

Conclusion

Several strategies have been presented that were specifically designed to help students improve their ability to infer information. These strategies mirror various aspects of the inferential process so that students clearly see and replicate the steps involved in inferring. These steps include selecting and using appropriate background knonwledge and text information to make inferences and monitoring the appropriateness of the inference for the context.

Additional strategies have been presented that will support inferential processing. Although the strategies were not singly designed to develop inferential comprehension, these strategies guide and support the students as they make inferences during a variety of activities to improve comprehension and writing ability.

Research does not support instruction in isolated skills as an effective means to construct text meaning. The strategies presented in this chapter are an effective way to help students learn to infer in natural learning situations in response to text.

Because inferring is a cornorstone of comprehension, we hope that teachers will include these strategies in their repertoire of instructional techniques. The choice of individual activities depends upon the classroom instructional goals and the needs of the students. For students who need to develop inferential thinking, one of the more explicit strategies that clearly mirrors the inferential process would be a good choice. For other students who should practice inferring along with other comprehension skills, some of the more general comprehension strategies would be beneficial.

Reflections

Does the ability to apply inferential comprehension strategies transfer to other reading tasks?

Inferring information is required in most academic tasks. Acquiring vocabulary meanings from context, identifying referents in a sentence and recognizing words in a text are a few of the language tasks that require inferences. Although individuals infer in daily situations, they do not automatically transfer this ability to reading comprehension. Students must tap relevant background knonwledge and integrate it with pertinent text clues to infer information. Students then monitor their thinking to ensure their inference fits the context. This thought process can be applied to all learning situations. Modeling the thinking processes one uses in inferring and explaining how to apply the same process to a variety of language tasks will demonstrate to students how and when to infer information.

Are there other strategies that will help students infer information?

The strategies presented in this chapter help students infer information. One group of strategies clearly mirrors, step by step, the inferential thought processes. These can be considered overt inferential instructional strategies. Other strategies actively involve students in the inferential thought processes as they are completing a variety of language activities. These can be considered covert inferential practice strategies. Both types of strategies help students infer information; one type is targeted primarily for this purpose so they are more explicit.

There are numerous comprehension strategies that, although not specifically designed to teach inferential comprehension, accomplish this task in conjunction with other goals. For example, a Story Grammar is designed to help students understand and internalize the structure of a story, but as students complete the Story Grammar they are required to infer information. Most comprehension strategies require some level of inferential comprehension.

Is it possible to use any of the skill based practice books to teach?

Although many school districts still have skill based practice books, research indicates that materials that foster isolated skills instruction are not effective for learning thinking processes. The materials are usually based on drill and do not contain adequate instruction. In addition, instruction should be based on authentic text used in the classroom. However, the passages in the drill text may be appropriate to practice some of the stratrgies presented in the chapter. For example, the text may be adequate for introducing the components of Reciprocal Teaching. In this way, the school resources would not be wasted.

ANNOTATED BIBLIOGRAPHY (in suggested order)

Carr,E., Dewitz,P., & Patberg,J. (1989). Using cloze for inference training with expository text. *The Reading Teacher,42*(6),380-385.

This article provides a rationale for teaching inferential comprehension and explains the Inferential Training Technique. A sample text depicts the application of the cloze procedure to learn how to infer information. The same text is then used to apply the strategy to answer inferential questions. A worksheet guide is provided for students.

Raphael, T. (1984). Teaching learners about sources of information for answering comprehension questions. *Journal of Reading,28,*432-437.

The article explains the rationale for the QAR-Question answer relationship strategy to help readers identify information sources to answer inferential questions. It describes how to implement this effective procedure in the classroom.

Palincsar, A. (1986). *Teaching Reading as Thinking.* Alexandria, Virginia: Association for Supervision and Curriculum Development.

The manual describes teaching reading as a recursive process before, during and after reading. It includes an explanation of Reciprocal Teaching, the research base from which it was derived, and suggestions for modification of the strategy. The modifications include using the strategy with nonreaders and in content subjects.

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Carr,E., Dewitz,P. & Patberg,J. (1989). Using cloze for inference training with Expository text. *The Reading Teacher,42,*380-385.

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4 UNIT

Text Structure

Unit Overview

Contents:

A. Suggestions for Staff Development Activities

B. Unit Essay

Focus—Introduces the importance of text structure in enhancing comprehension.

What is text structure?

- Narrative text: The Story Grammar
- Expository text

What are the roles played by text structure in reading?

- The "before" phase: Making intelligent guesses about text structure
- The "during" phase: Seeing how good the guesses were and modifying or rethinking them as appropriate
- The "after" phase: Summarizing what was learned by using the text structure as an organizational frame

How do you teach students to use text structure?

- Planning instruction to use text structure in reading
- Explicit instruction and modeling
- Guided practice
- Independent practice
- Assessment

Reflections — Answers to questions that you may have about how to integrate the use of text structure into your classroom.

C. Annotated Bibliography

UNIT OVERVIEW

In this unit of the Strategic Reading Project, we introduce you and your school to methods of helping students use text structure to improve their reading comprehension. This unit answers three basic questions about text structure, as well as some subordinate questions that elaborate these basic questions.

1. What is text structure?
    - a. What is narrative text structure?
    - b. What is expository text structure?
2. What are the roles played by text structure in the reading process?
    - a. How do good readers use text structure *before* reading?
    - b. How do good readers use text structure *during* reading?
    - c. How do good readers use text structure *after* reading?
3. How do you teach students to use text structure?
    - a. How do you plan for instruction in using text structure?
    - b. How do you provide explicit instruction and modeling, guided practice, and independent practice in helping students to use text structure to improve their comprehension?
    - c. How do you assess students' use of text structure?

As in the other units, this unit includes a Focus section. This section introduces the notion of using text structure through a concrete, everyday instance of its use. This unit also has a Reflections section, which raises issues and questions you may have about how to use text structure in your own classroom and school.

The staff development activities below are suggestions for how you and your colleagues might use the SRP materials.

Suggestions for Staff Development Activities

Building A Knowledge Base

- Read the Unit Essay, consult the Annotated Bibliography and select one or two articles to read. Discuss the readings with other teachers.

Before you read...

- Discuss what you already know about how text is organized in structures, and how you and your students have found using text structures valuable in understanding text.
- Reflect on how you developed your knowledge about text structure and how you have seen students develop text structure knowledge over time.
- Discuss what affect an explicit awareness of text structure has on assimilation of information, retention, rethinking of prior beliefs, and the meaning given to content that is read.
- Scan the Unit Essay, and try to predict what it will say, especially in regard to teaching students how to use text structure.

While you read...

- Think about whether your predictions are being borne out, whether the text is prompting you to think about text structure in new ways, and what connections the ideas in the test have to your current classroom practice.
- Think about the "instructional frame" that is being used in this text an dhow it compares to the one presented in other units in this series.

After you read...

- Summarize what you have read using the "definition plus instruction" frame (that is, what the strategy is, its role in the learning process, and how to teach it) employed in this unit and most others.
- Evaluate the "considerateness" os this text—how well did it lay out its structure, signal organizational patterns, and make well-integrated use of graphics.
- Think about how to apply what you have learned about test structure to enhancing comprehension instruction in your own classroom.

Observation Models and Examples

- Listen to SRP Audiotapes for the Unit. Share ideas with colleagues. Observe or listen to classroom demonstrations by teachers instructing in the use of text structure. Discuss and write down examples of the following:
  - Introducing the notion of structure in general and text structure in particular (e.g., by drawing an analogy between organizing your clothes by placing certain types of clothing—socks, underwear, pants, etc.—in certain drawers in the "structure" of the bureau and organzing information by sorting them into the "slots" of a text frame).
  - Thinking aloud to students as you think of what text structre you should use to organize information about a certain topic at hand.
  - Guiding students to use text structure to anticipate, process, and summarize information in a text.

- Training students to work in small groups to identify, map out, employ, and evaluate text structures as they share reading and writing tasks.
- Helping students graphically represent and expand their repertoire of text structures, both those that are general (problem-solution, compare-contrast, causal chains, etc.) and those that are content-specific (e.g., geographical areas, genre structures, culture frames).
- Encouraging and guiding students in the transfer of the notion oforganizational` structures to wider and wider contexts (in thinking, in speaking, in designing a project, etc.; in chemistry, in art, in math, in singing and musical composition, etc.) and increasinly complex situations (from list structures to the higher-level embedded structures of sophisticated essays and articles).
- Promoting spontaneous use of text structures as students learn to read and write independently.

Reflecting on Your Practice

- The literature on text structure is immense. It is both the subject of a great deal of research activity and the topic of many highly useful "practitioner-friendly" guides and manuals. (See the annotated bibliography and reference list for a sample.) Thus, no one source, certainly including this Unit, can cover all the types of text structures out there. Brainstorm with your colleagues to create a shared library of text structures.
- Analyze a lesson on text structure or a lesson employing text structure that you or a colleague have used and evaluate its effectiveness according to the criteria for effective instruction.
  - Does a sufficient amount of explicit instruction and modeling, guided practice, and independent practice in the use of text structures occur in your classroom and school, or is it usually *assumed* that students will simply "pick it up" as they go along in school?
  - Do the goals for instruction in the use of text structure include content and process objectives? That is, are text structures taught well-matched with the tasks and materials in use?
  - Are sound rationales provided for the selection of text structures to be taught?
  - Does the teacher gradually release responsibility for identifying and using text structures to the students?
  - Is there an effort to employ text structures in wider contexts, across content areas, and with increasing complexity?
  - Is there an effort to integrate text structure use in reawding with its use in writing, oral discourse, and thinking in general?
  - Is there an effort to match learning strategies with instructional goals, students' prior knowledge and abilities, and the difficulty of material?

Changing Your Practice

- Observe another teacher helping students use text structure or invite a teacher to provide a lesson on text structure to your class.
- Meet with other teachers interested in text structure at your school to exchange ideas about instructional strategies and useful materials, and to provide support to one another in text structure instruction.
- Rewrite or modify a lesson plan to incorporate your new ideas about text structure instruction.
- Create new lesson plans that use text structure instruction.
- Contribute your lesson plans to a "resource exchange" at your school, and look through this exchange to see if there ar e lesson plans you can use.

Gaining Expertise

- Model the use of text structure to enhance reading comprehension in another teacher's classroom.
- Coach a colleague who is just learning how to think about and instruct in text structure usage.
- Collaborate with a colleagues to ensure the use of text structure instruction across the content areas—help make its use a school-wide focus through staff development meetings.

ESSAY

It had been along time since Margaret was a student. Though she had been teaching for years, and learning a great deal in the course of teaching, studying again required some adjusting, especially at the graduate level. "Why can't these researchers speak English?!," she found herself complaining to her husband. "Are they so insecure in their ignorance that they have to hide it with jargon?"

Her husband, Joe, who had recently suffered through graduate school himself, implored her to be more generous. Joe declared, in his maddeningly professorial manner, "Perhaps the terminology is needed to gain the kind of precision in meaning that you can't have with ordinary language. Every field has its own language to reflect its own way of thinking." "Well," she replied, "I can't imagine that talking about how kids learn needs to be this obscure."

Margaret tried to go back to reading the journal article, but was having a hard time remaining awake in the face of the density of the text. At her school the next day, she asked a colleague, Beverly, how she got through the same cognitive psychology class. Beverly had an extensive explanation: "I was a psychology and education major at college, so my psychology background helped. I knew that most research articles in psychology were organized pretty much the same way. They have an introduction, a methods section, a results section, and then the discussion." After taking a deep breath, she went on: "First, in the introduction, the authors present their theoretical approach and how others have approached the same topic, then they present their hypotheses. After that, they outline their method, talking about what variables they used, and how they defined the variables; how subjects were selected and their characteristics;"—she put up her fingers as she ticked off the elements in a Methods section—"how they went about measuring the variables; the design of the study and the procedures used to collect data; and the sort of data in general that they got. So after laying out their hypotheses and their method, they spell out how they analyzed their data and the conclusions they arrived at in their Results section. They suually end the article with a discussion, where they talk about the significance of their results, how it compares with past results of similar studies, and what needs to be studied firther. So I know what to expect in reading any research article—I look for the hypotheses, the method used, the results, and the discussion. This helped me wade through all the articles in that cognitive psych class and figure out what was most important."

Margaret thought knowing this sort of pattern, or structure, could be an important help, so she sat down with Beverly to copy down all the elemnts she should expect to be treated in the journal articles. "And incidentally," Beverly added, "most of the terminology that's really important should be defined in the first part of the Methods section, where they discuss how they define and measure their variables. I think if you can get this structure down, the terminology won't seem so daunting."

That night, Margaret sat down with her articles again, and she did find that the articles approximated the pattern that Beverly said they would, with a few variations. The articles still made her head swim, but she found that she could stay above water with the support that the general structure of the articles provided.

What Is The Structure?

As discussed in "The New Definition of Reading," reading is a process of constructing a representation, or model, of text in the reader's mind, a process which is an outcome of the interaction of the reader, the context, and the text. The mental model constructed in effective reading is composed of one or many structures that meaningfully reflect the overall structure of the text. Margaret learned to use a certain structure found in most psychological research articles to build a better, more accurate model in her head of the texts. Reading researchers have found that when people know the "text structure," or how a text is patterned—for example, how a story is told—they comprehend and retain what they read much better. Being aware of this text structure can help the reader build amental model of the text, which, as is evident from the new defintion of reading, is critical to comprehension.

These mental model sof text emerge more generally out of ways in which we organize experience to give that experience meaning. Bruner (1986) has argued that there are basically two different ways of thinking, of organizing our experience: the paradigmatic and the narrative. We are very familiar with the paradigmatic way of thinking: it aims at making well-reasoned arguments based on sound evidence to arrive at a description of a defensibly true state of affairs. The paradigmatic way of thinking uses the language of logic, mathematics, and science to determine underlying patterns or regularities. Discourse that embodies such thinking is governed by certain rules of inference, empirical methods of verification, and abstract schemes of classifying phenomena. This discourse insists on non-contradiction and freedom from inconsistency.

Narrative ways of thinking, on the other hand, aim at telling good stories, stories that provide an intriguing or compelling account of the self-created world of characters, their intentions and perceptions, their plight, and their striving within the constraints of a particular setting. It uses figurative language to stretch and create new meanings, to imagine possible worlds. Narrative discourse is also constrained in certain ways—a good story must:

- be believable;
- relate both the external features of the settings and actions in it, and the consciousness of these features and actions by the characters;
- carry forth the unfolding interactions of settings, intentions, actions, and outcomes; and
- have a beginning in a steady state, a middle in a disruption of that state and the ensuing action to redress the disruption or restore the situation to the original state, and a sense of ending in a resolution.

The narrative way of thinking conveys the particularity of our experience; it richly describes the contexts in which our lives and the lives of others unfold. It values the idiosyncratic and context-specific features of human experience.

These two ways of thinking, the paradigmatic and the narrative, are embodied in the two basic types of text structure described below: the narrative, which tells a story, and the expository, which presents information and ideas. It is important for students to realize that different text structures are actually inducements and guides to different ways of thinking. This reminds them that meaning is not "in" the text, but is constructed by the reader as he or she engages in a imaginative dialogue between the text and the reader's mind, aiding the reader to think about a topic or a possible human world, hopefully along a cognitive and experiential path that the author intended.

Narrative Text: The Story Grammar

Reading researchers and reflective practitioners have found that certain organizational patterns are used over and over in narrative and expository text. In narrative text, the usual structure is the "story grammar," consisting of two major elements in sequence: first, the setting, which introduces the story by describing the physical, social, and historical features of the context in which the story happens; and then the episode. The episode itself can be broken down into five sub-elements:

- **the initiating event:** an action, an internal event (in the mind of the protagonist), or a natural occurrence that causes a response in the protagonist;
- **the internal response:** a feeling, thought, or goal of the protagonist resulting from the event;
- **attempt:** the outward behavior of the protagonist acting on his or her internal state to obtain a goal;
- **consequence:** an event, action, or endstate which marks the attainment or nonattainment of the protagonist's goal; and
- **reaction:** an emotion, cognition, action, or endstate expressing the protagonist's feelings about the goal attainment or relating the broader consequences of the attainment.

The elements strung together in this sequence constitute the typical pattern of a simple, well-formed story. Stein and Nezworski (1972) give this example of a basic prototypical story:

> Once there was a gray fish named Albert who lived in a big icy pond near the edge of a forest. One day, Albert was swimming around the pond when he spotted a big juicy worm on top of the water. Albert knew how delicious worms tasted and wanted to eat one for his dinner. So he swam very close to the worm and bit into him. Suddenly Albert was pulled through the water into the boat. He had been caught by a fisherman. Albert felt sad and wished he had been more careful.

The setting is a pond. The episode has the following elements: the initiating event is Albert's eyeing the worm; the internal response was his desire to eat the worm; the attempt was to eat the worm; the consequence of the attempt was being caught by a fisherman; and his reaction was sadness and regret.

Of course, a story that's well-formed is not necessarily a *good* story (certainly the story about Albert is hardly gripping drama); to be a good story, a story has to engage the heart and stimulate the mind. And not all good stories follow this sequence: a mystery or spy novel may start with a broad, intriguing consequence of an attempt, and then retrace the steps that led to it. What is vital, though, to a good story is that it be coherent (though not necessarily predictable), and this means it must forge causal relations among the various elements of a story, even if it does not present the story in the actual causal sequence.

Variations on the more basic story pattern can present one source of complexity in attempting to understand a story. Another source of complexity can be a number of episodes and their interrelations. Above, we considered only one episode, but most interesting stories contain many episodes related to one another by various connections: these episodes can come together at some point in time by sharing a consequence (e.g., two knights, going down different paths, meet when they arrive at the place of the Holy Grail), they can follow one another in sequence, or they can causally related, though separated in time. Yet other sources of complexity can be noted: one story can nest a story within a story, or two stories could be told alternately, though parallel in time, with the events converging in the end to render a common consequence. The variations—the intriguing complexities introduced in telling a story—are only limited by the creativity of the author.

Expository Text

The other major purpose of text, in addition to telling a good story, is to relate information and ideas. This purpose is fulfilled by expository text. Expository text presents knowledge in well-organized, factual text, and predictably abounds in academically-oriented classes. Expository text can be found in textbooks, reference books, non-fiction books, pamphlets, and articles, such as the journal articles with which Margaret struggles.

You read the **narrative** story of Albert, the fish, on the preceding pages. Now read the following example of an **expository** segment of text on the same "fishy" topic.

> A fishing lure is a complicated device designed to fool fish. A lot of time and effort are spent in creating a lure, where the designer attaches small reflective pieces of metal that spin as the lure is pulled through the water. Special fins are also attached to give it a "jerky" motion attempt to simulate the appearance of real food. A well-designed lure has the hook strategically placed where it is the least noticeable, yet the most effective. Many fishermen keep a wide array of sophisticated lures in their tackle box, but their favorite one may simply be the lure that caught their biggest fish.

We have considered the structured used to tell a story, but what of the structure employed to express and elaborate an idea? The typical structure of an expository text is all too familiar to most who have taken, or have taught, an expository writing class. Fledgling writers of ideas are taught in such classes to "say what it is you're going to say, say it, and say what you've said." This bromide often translates into the following structure for an expository essay: (1) the introduction presents the background for the general topic, and this topic is narrowed to a thesis, a topic sentence with a "limiting idea" to focus and constrain the position being taken on the subject; (2) supporting ideas follow, which elaborate on, and defend, the thesis; and (3) the conclusion reiterates the thesis, briefly reviewing the points used to support it.

This general statement about expository structure, though, belies great variety in organizing expository writing. The structures that expository texts exhibit are as varied as their purposes and the domains of knowledge that such texts embody. Here are some of the common structures used in organizing expository text (again, familiar to the graduate of the expository writing class):

- **description or simple listing:** a listing of items, ideas, or attributes where the order of presentation is not significant

Example

A shark is like a long, bullet-shaped muscle. Its whole sleek body is designed for speed and power. While some fish rely on shape and color for protection, the shark relies on its strength and speed. The shark's body is streamlined. Its long, narrow, slim shape allows it to swim powerfully, like the aerodynamic form of a jet fighter. Its two eyes are located near the front and on opposite sides of the head, giving it a tremendous range of vision. Below the eyes are the powerful jaws which open to reveal hundreds of sharp teeth strong enough to pierce metal. Further back are the gills, on its back, the familiar, terrifying dorsal fin. It's no wonder that humans who see this fin are filled with fear.

- **temporal sequence:** a sequential relationship between ideas or events reflecting the passage of time

Example

A turtle's life begins on a sandy beach or riverbank. The hatchlings emerge from the nest of eggs left by the mother. The baby turtles face many dangers from birds and animals as they make their first journey across the sand to the water. Once in the water, the turtles begin their search for food. Their hard, sharp jaws allow them to eat many kinds of food, such as plants, fish, and frogs. During the warm summer months, turtles like to sun themselves. Later, when the weather turns cold, they burrow into the mud and sleep for months until the warmer weather returns. When they get older, turtles seek a mate and the female returns to the beach to lay eggs for a new generation.

- **definition and example:** a definition of a key word or concept followed by an example

Example

Echo location is a sensory process that relies on sound instead of light to locate objects. For example, whales and other animals emit a clicking sound which bounces off distant objects. The longer it takes the echo to return, the further away the object is from the whale. Scientists have found that dolphins can distinguish a circle from a triangle and wood from metal from 100 feet away, even in muddy water, by using this fascinating sense.

- **comparison and contrast:** a description of similarities and differences between two or more things

Example

Both whales and fish live in the ocean, and many people think they are very similar. While they both have fins and bodies shaped for swimming, there are also important differences. Whales are mammals that must surface to breathe the air, while fish have gills to extract oxygen from the water. Because they are mammals, whales are warm-blooded and must maintain a constant body temperature. So they are equipped with a thick layer of blubber to insulate them from the cold water of the deep oceans. Fish, on the other hand, are cold blooded and maintain a body temperature close to that of the water they swim in. Whales are mammals that have adapted to living in the ocean, but are very different from the fish around them.

- **cause and effect:** interaction between at least two ideas or events, one considered a cause and the other an effect or result

Example

Emperor penguins evolved to live in the cold waters of the Antarctic. Due to the fact there was little food for them on the land, they developed into wonderful swimmers. In order to swim better, they have small wings, which are useless for flying, but are efficient paddles in the water. Because penguins need to swim, their feathers are very small and compact and are coated with oil to keep them warm and waterproof. Their heavy bones would be hindrance to flying, but allow them to float lower in the water so they can make use of their powerful wings for swimming. The penguin is built the way he is because he needs to spend so much time in the water.

- **problem and solution:** interaction between at least two factors, one citing a problem and the other a solution to that problem.

Example

Many kinds of whales are close to extinction today. Although they have few natural enemies in the ocean, in the last several hundred years, man has proved to be a serious danger to their existence. They were hunted for their meat and oil and some species almost disappeared. As environmentalists made people aware of this problem, pressure has grown for the protection of whales. Recent international treaties now restrict the killing of some species. Under this new protection, some endangered whales are beginning to make a comeback.

Using Frames for Expository Texts

Certain subject areas use certain structures more often than others. A biology text is replete with description, definition, and comparison/contrast structures; a passage in history is usually structured as a temporal sequence; an article in physics typically lays out the cause and effect of phenomenon, while a pamphlet from health class often describes a problem and its solution. The use of these structures are not for the exclusive application to content areas in the higher grades. Younger students can also be taught to recognize and utilize text structure.

EXAMPLE

(Source: Martha A. Kinney, "A language experience approach to teaching text structure," appearing in The Reading Teacher, May 1985.)

A teacher used a language experience approach to teaching expository text to first graders. In this approach, the students dictate a story to their teacher about an experience that they have all shared and this story becomes the basis for vocabulary and reading comprehension exercises. A five day lesson sequence was developed to teach expository structure through a language experience approach. On day one, the children were presented with two objects to be compared and contrasted. The teacher led a discussion on how these objects were alike and how they were different. Pairs of objects included a football/baseball, orange/banana, and "shape" people, one large and light blue, one small and dark blue. After the discussion, the class made a chart of the likes and differences.

On day two, the children dictated a group story to the teacher, using their chart for guidance. The teacher controlled the format of the story by asking students to write first how the objects were alike and then tell how the objects were different. Students were reminded that if they told about one object they had to tell about the other—a baseball is round, but a football is pointed, for example. The students then practiced reading the story.

Days three and four were practice days. In addition to typical language experience activities such as underlining known story words and filling word banks, students practiced understanding the structure of the story. They completed sequencing activities and played games with the object of matching one contrastive part with another, e.g., "baseball is round" would be matched with a "football is pointy."

On day five, each student rearranged a scramble version of the story in the correct order.

In a test given a few weeks later, students were given a passage comparing and contrasting robins and cardinals. In comparison to a text given before the language experience instruction in expository text fewer children recalled random details, and more phrased their recall in a structure that mirrored the passage structure.

In addition, particular subjects may have "frames" that are used repeatedly to organize content; they may have slots that address a set of questions or specify categories for information. For example, a cultures frame used in social studies would present the major categories for organizing information about a culture. The categories include: Technology (food, clothing, shelter, tools); Institutions (economic, political, family, religious, education); Language; and the Arts. Comparisons and contrasts of these categories in the frame make it possible to name systematically the differences between one culture and another (Armbruster and Anderson, 1985). For instance, the culture of Islamic countries can be differentiated from American culture on the basis of food preferences, political parties, language, and music.

As with narrative text, expository text has sources of complexity and variation in structure as well. The text may be composed of a number of different structures strung together, or one structure may embed another. For example, an article in science that presents a fundamentally new approach to a topic may begin by defining a complex concept (e.g., special relativity) and illustrating it with a variety of examples, then show how the concept can be used to explain the cause-and-effect relationships in a class of phenomena, and conclude by comparing and contrasting this new concept with concepts used in the past to explain the phenomena.

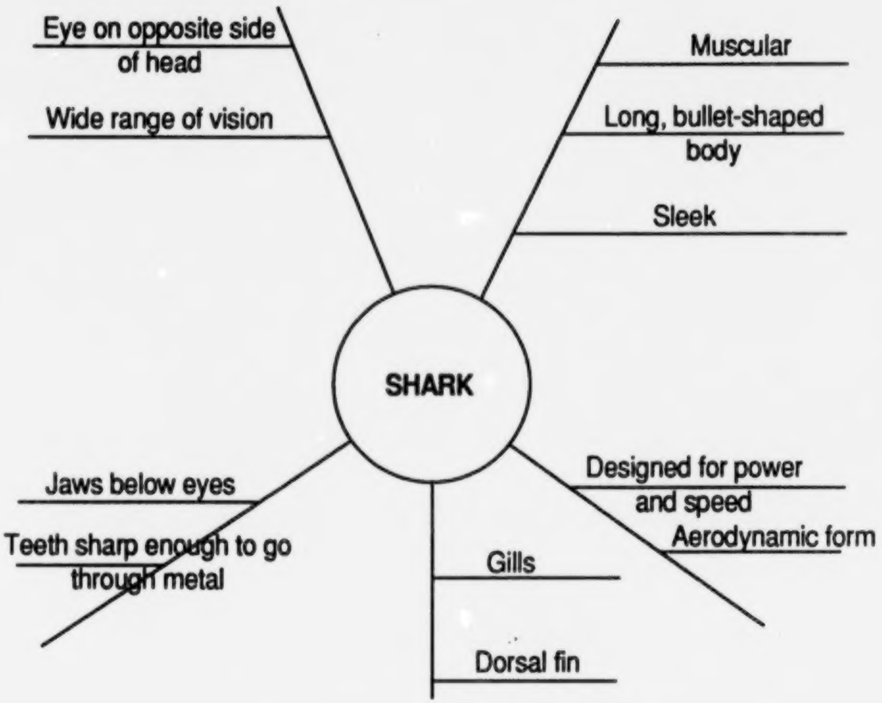
While a number of structures in sequence is complex, what is truly demanding of the reader is text which nests structures within structures. In fact, it is common for most well-crafted essays (such as those found in *The Atlantic Monthly*) to have an overarching structure that serves one of the purposes above (describing, defining, explaining, etc.), and which embeds any number of the other structures in supporting paragraphs. These paragraphs themselves may have sentences that reflect one of the these structures. For example, an essay on chronic unemployment, possessing an overall problem-solution organization, may have within it a paragraph *defining* "structural change" in an economy as part of a series of paragraphs *listing* the *causes* of the *problem* of chronic unemployment, while a sentence within a paragraph *lists* the common attributes of an economy undergoing structural change, and the concluding sentence of the paragraph *compares and contrasts* this economy with the economic system before the structural change.

In fact, as you are reading this, Margaret is fighting a winning battle with an article on the influence of the nesting and *concatenation* (a high-powered word for the lining-up of elements) of knowledge representation structures on text coherence and comprehension. Each sentence in the article moves rapidly from one dense structure to another: one sentence compares various theoretical approaches, the next defines an abstract concept (in abstract terms, with a subordinate clause relating to a problem and its solution), and yet the next posts a hypothesized cause-and-effect relationship. Luckily, Beverly has equipped Margaret with a big map of the text so she doesn't get lost or diverted along the way, and so that her spirits can remain buoyed as the next landmark, say Methods or Results, comes into view.

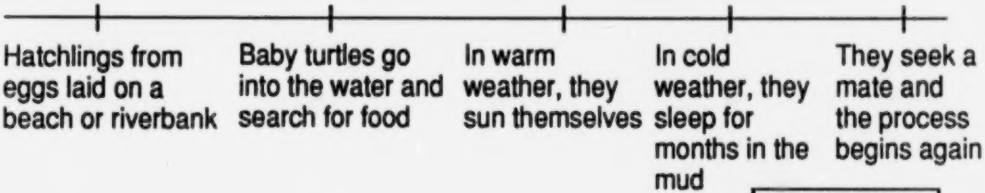
What Are the Roles Played By Text Structure in Reading?

During all phases of the reading process, an awareness and knowledge of text structure comes into play. Before embarking on the actual reading of the text, good readers try to make sound, well-informed guesses about the structure of the text. As they read, they check their predictions, and modify, elaborate, and perhaps even restructure the model of the text as they obtain more information and reflect further on the text. Finally, after they finish reading, they prioritize and summarize what they have learned from the text using the structures that organize information in the text, often "mapping" the story or exposition graphically to help them. On the following pages are examples of how graphic organizers can be used with various text structures.

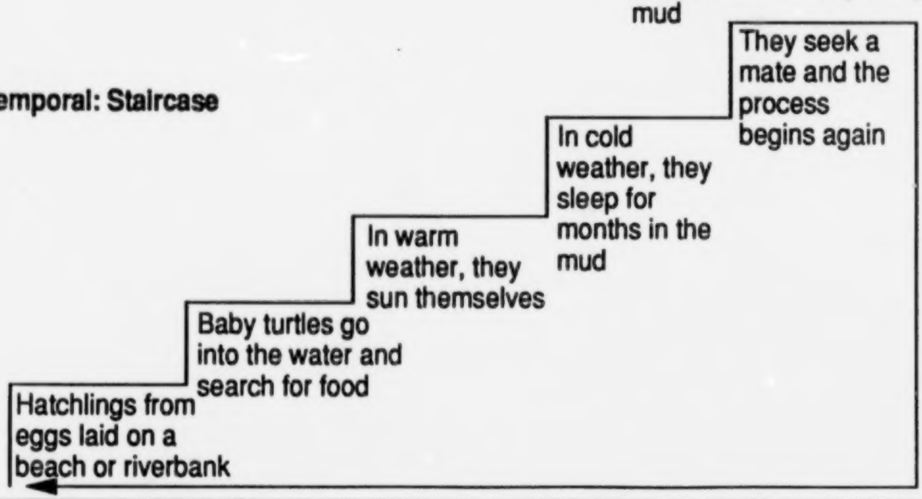
Description: Spider Map



Temporal: Time Line


Hatchlings from eggs laid on a beach or riverbank
Baby turtles go into the water and search for food
In warm weather, they sun themselves
In cold weather, they sleep for months in the mud
They seek a mate and the process begins again

Temporal: Staircase


Hatchlings from eggs laid on a beach or riverbank
Baby turtles go into the water and search for food
In warm weather, they sun themselves
In cold weather, they sleep for months in the mud
They seek a mate and the process begins again

Definition/Example

DEFINITION

Echo location is a sensing process that uses sound to locate objects. Sounds sent by animals bounce off the object and the echo returns, telling how far away the object is.

EXAMPLE

Dolphins can tell a circle from a triangle from 100 feet away by echo location.

EXAMPLE

Dolphins can tell wood from metal even in muddy water with echo location.

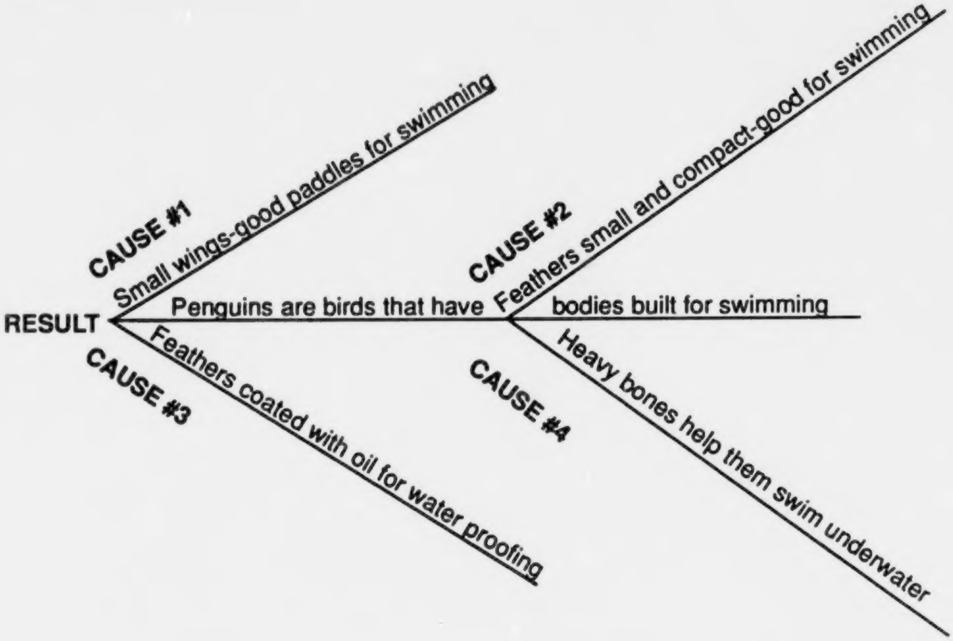
EXAMPLE

Whales and other animals emit clicking sounds.

Compare/Contrast: Matrix

ATTRIBUTES	WHALES	FISH
Live in the ocean	X	X
Fins	X	X
Mammals	X	
Breathe air	X	
Extract oxygen from water		X
Warm-blooded	X	
Cold-blooded		X
Blubber for insulation	X	

Cause/Effect: Fishbone Map


RESULT
Penguins are birds that have bodies built for swimming
CAUSE #1
Small wings-good paddles for swimming
CAUSE #2
Feathers small and compact-good for swimming
CAUSE #3
Feathers coated with oil for water proofing
CAUSE #4
Heavy bones help them swim underwater

Problem/Solution

PROBLEM

Who: Whales

What: Extinction

Why: Hunted by man for meat and oil

SOLUTION

Attempted Solution:	*Results:*
Environmentalists raised awareness Pressure to protect whales has grown	Treaties restrict killing of some species

END RESULT

Some endangered whales are making a comeback

The "Before" Phase: Considering Text Structure before Reading

The "before" phase of the reading task should engage the good reader in making intelligent guesses about the text structure. Poor readers tend to plunge right into a text, not stopping to orient themselves to the reading task first. Good readers, on the other hand, will first think about the purpose they have for eading the text, reflect on the prior knowledge they have of the subject matter, generate questions they would like answered as they rteawd the text, try to predict what the text will present, and guess at the text structure. That is, good readers take time out to orient themselves to the reading task before they actually begin to read. Of course, poor readers can be taught how to engage in such orienting activities in order to help them develop into good readers.

The following is an example of a classroom discussion before reading a Social Studies lesson entiteld "Early Mariners." It demonstrates how a "good reader" approaches a typical textbook assignment. The teacher begins the lesson by asking some questions about the text and topic of the lesson.

Example

Teacher:

Before we begin reading this lesson, I'd like you to take two minutes to preview the chapter and tell me what you can about early mariners.

(Students open their books. Some, like Larry, go immediately to the top of the page and begin reading in sequence. Mirra, on the other hand, glances through the pages, looks at each heading and spends a moment looking at the map and the time line at the end of the chapter. She goes back and forth between the time line and the reading segments, trying to quickly match up who goes with which country. She also notices that vocabulary terms are provided in the margins.)

Teacher:

Who can tell me something about what we'll learn in this chapter?

Larry:

Sailors use hooks and nets to go fishing. And Hanno was a tailor.

Mirra:

From skimming through the chapter, I think there were lots of different people who explored the oceans, like the Greeks and Vikings. I looked at the map that was included; it seems like they went all over. However, the map doesn't show America, so maybe they didn't go to America.

Teacher:

Can you tell when all this sailing took place?

Larry:

I don't know.

Mirra:

It looks like it started in prehistoric times and went until 1982 A.D.

Teacher:

How do you know that, Mirra?

Mirra:

Well, I looked at the time line at the end of the chapter, it gave me a quick overview. It shows all the people who traveled and when they did it.

Teacher:

Does that tell you or give you any clues about how this chapter is organized?

Mirra:

It goes from earliest to latest, but it doesn't go very far; 982 was a pretty long time ago, and I'll bet a lot has happened since then. It doesn't even cover some of the other early explorers.

Teacher:

So this chapter might be concentrating on the very earliest of explorers. What would you like to know about these early explorers? What other questions do you have?

Larry:

How many pages are in this chapter?

Teacher:

That is an important question Larry, but do you have any about the explorers?

Larry:

No...

Mirra:

What kind of boats did they have? Why didn't they make it to America?

Teacher:

I'm interested in that map—why do they show only parts of the world?

Mirra:

And what did these sailors want? Why did they go exploring? Just to find new land, or for something else?

Teacher:

Good questions! Let's read now and see if we can find some answers to our questions.

As was mentioned, one important pre-reading, oriented activity is surmising text structure. A number of clues may be provided to readers to anticipate text structure. The more evident the clues in expository text, the more *considerate* is the text. Considerate expository text lays out its structure very clearly through the use of various levels of headings, bold or italicized words, words signaling certain structures (such as "in contrast,..."), graphics, and so on. Readers can take advantage of considerate text by looking at the title, hedings, and subheadings to surmise the text structure, and they may also scan advanced organizers or summary points, text graphics, and even references to gain more clues about what structures are likely to be a pre-reading activity, they make a good guess about the general, overarching text structure and the component structures that constitute it. This helps them activate their prior knowledge about text structures, gain a better sense of how to prioritize information in the text, and build a "frame" that sets expectations for the "slots" into which the information can be placed.

Example: Considerate Text

EARLY MARINERS

The Earliest Sailors

mussels: fresh or saltwater animals that resemble clams or oysters

Mankind has been attracted to the water since earliest times. Primitive man found the sea a rich source of food, gathering mussels and other life from the beaches, and fishing from the shore with both hooks and nets. Fishing inevitably led to boats and from that point on the rivers and oceans became the highways of early man.

The Phoenicians

galleys: long, low ships of ancient times, driven forward by oars and sails

One of the earliest people to sail widely on the oceans were the Phoenicians. Their skill as sailors led them into trading throughout the known world. As the Egyptian empire was declining around 750 B.C., the merchants of Phoenicia were sailing in the Red Sea, the Indian Ocean, to the Greek islands, along the Mediterranean coast of Africa, and finally out into the Atlantic. They sailed both north and south as they searched for new goods and markets. (See map on page 18.)

horn:

One of these early sailors was Hanno, from the Phoenician colon of Carthage on northern Africa. He is said to have sailed with 67 galleys and 30,000 men and women out into the Atlantic and down the African coastline, around the western horn, and to the Gulf of Guinea.

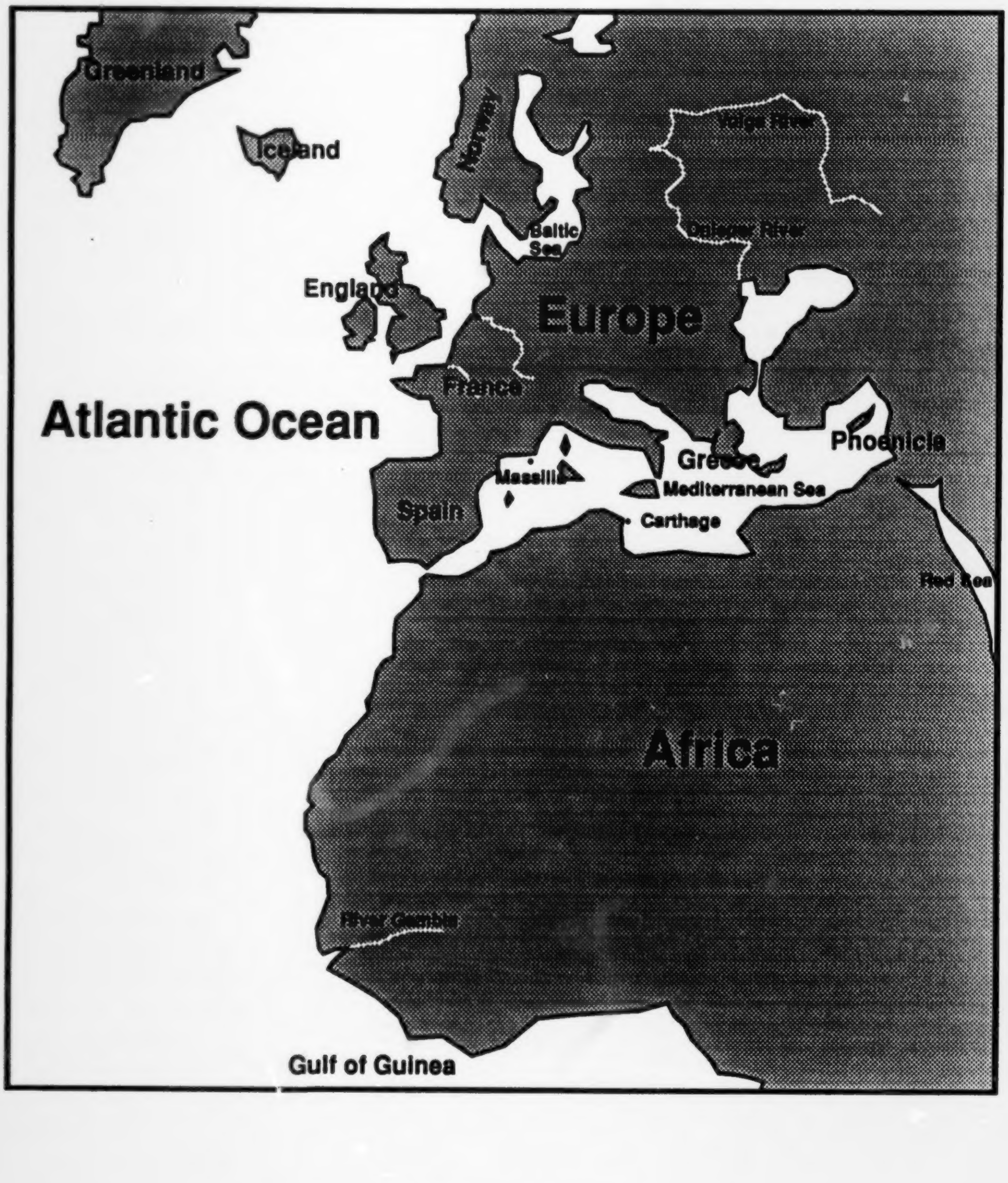
The Greeks

peninsula: a land area almost surrounded by water

Trojan War: according to Greek mythology, the Trojan War was fought between the Greeks and Trojans over Helen of Troy. Neither side was winning.

The ancient Greeks were some of the finest sailors of the ancient world. Their country was a network of cities spread around a peninsula and series of islands. Surrounded by water as they were, the sea was a second home to many Greeks. Their early tales and legends celebrated the seafaring abilities of heroes like Odysseus who sailed eastward with the fleet to fight the Trojan War.

Early Mariners Map



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In contrast, *inconsiderate* text does not provide any or few of these "helpful" aids. There is very often the absence of graphics, chaptre subheadings, or explanations/definitions of unusual or unfamiliar words. The text selection below is an example of *inconsiderate* text. Compare this with the example on page17.

EARLY MARINERS

Mankind has been attracted to the water since earliest times. Primitive man found the sea a rich source of food, gathering mussels and other life from the beaches, and fishing from the shore with both hooks and nets. Fishing inevitably led to boats and from that point on the rivers and oceans became the highways of early man.

One of the earliest people to sail widely on the oceans were the Phoenicians. Their skill as sailors led them into trading throughout the known world. As the Egyptian empire was declining, the merchants of Phoenicia were sailing in the Red Sea, the Indian Ocean, to the Greek islands, along the Mediterranean coast of Africa, and finally out into the Atlantic; both north and south as they searched for new goods and markets.

One of the these early sailors was Hanno, from the Phoenician colony of Carthage on northern Africa. he is said to have sailed with 67 galleys and 30,000 men and women out into the Atlantic and down the African coastline, around the western horn, and to the Gulf of Guinea.

The ancient Greeks were some of the finest sailors of the ancient world. Their country was a network of cities spread around a peninsula and series of islands. Surrounded by water as they were, the sea was a second home to many Greeks. Their early tales and legends celebrated the seafaring abilities of heroes like Odysseus who sailed eastward with the fleet to fight the Trojan War.

Later the Greeks sailed to the west. Phytheas of Massilia (a Greek colony in France) is reported to have sailed out of the Mediterranean and up along the Spanish coast, stopped in England and Norway. He explored mysterious lands to the north, possibly traveling as far as Iceland, and brought back to the warm Greek islands reports of areas as far away as the Arctic Circle. Like many early sailors, it is believed that Pytheas hugged the coastline as he sailed, afraid to venture far from the comforting sight of land. It was many years before reliable navigation was possible on the open ocean.

Several hundred years later, it appears that the Vikings may have sailed some of the same routes as Pytheas of Massilia as they came southward to explore from their homes along the Baltic Sea and Scandinavia. Skilled sailors, the Vikings traveled throughout a large part of the then known world. Their voyages went as far south as the Mediterranean, and along the Volga and Dneiper rivers into Europe.

Viking ships were small by our standard, few were bigger than a hundred feet long. They were propelled by men with oars, and a square sail that could be used when the wind was blowing the right direction.

The Vikings had long known of Iceland, and in about 982, Eric the Red sailed further west to Greenland. The following year, settles made their way to Greenland. Soon there were reports of other land to the west and Leif Ericson, the son of Eric the Red, led an expedition that may have reached the northern shores of America.

UNIT 4

The "During" Phase: Thinking about Text Structure while Reading

In the "during" phase, readers try out their predictions about text structures, and modify or even rethink them when appropriate. When comprehension is good, there is a close fit between the model one has in one's head to represent the meaning, or gist, or a text, and the actual structures used to organize the text. A reader who has skimmed the text before embarking on the reading task used the guessed-at, or hypothesized, text structure as the working model of the text. Perhaps the reader drew this structure on a piece of paper to help in processing the information as he or she read. The effective reader monitors how well this mental model matches the actual text structure, and modifies, elaborates, or even restructures the model as appropriate to gain a more robust and accurate picture of the text's meaning.

It is important that the reader realize that the expected or hypothesized structure of frame is only a "heuristic"—a scaffold to begin thinking actively while reading a text—rather than the proposed "answer" to the nature of the text structure that the reader needs to hold onto tenaciously and defend. Th reader should understand that reading is an open-ended process of constructing meaning from a text, rather than an attempt to "cram" the text's information into preconceived notions about what the text means and how it is structured. In a sense, the reader should expect to be wrong about the hypothesized structure, and see this disconfirmation simply as an indication that there is something new to be learned by engaging the text.

During reading it is difficult to assess comprehension. "Listening in" on students' thoughts can provide some clues about good readers and poor readers. Here is what Mirra is thinking as she makes her way through this chapter:

Mirra:

It's interesting that they call the oceans "highways." But I guess boats were the most important way to get around before roads were built or cars were invented. Afterall, horses couldn't take you across water.

"Mariners" must be sailors. I don't know why they don't say "sailors." I wonder if that word is related to "marine life."

I seem to be right about the organization of this chapter. It's jut like the time line at the end of the chapter. It's funny how 750 comes before 325, but that's because it's B.C. I always get that mixed up. I'll bet they tell who conquered what country and what kind of trading they did.

I wonder why Hanno traveled with all those men and women. It seems like they'd just get in the way on a ship. Maybe the teacher knows.

Here's an answer to one of our questions: Why did they go exploring? They wanted to find new markets. I guess they were pretty good traders.

I didn't think the Greeks would go so far as the Arctic Circle! I thought they liked the hot weather! Pytheas mut have been really curous. But he was also a little afraid, because he didn't leave sight of land. The map shows how easy it would be to get a lot of places even if you didn't leave sight of land—you could get to England and Norway, and I guess close to the Arctic Circle and still feel safe. It says he "possibly" traveled to Iceland—I wonder, since that would mean leaving the shoreline.

I like the Vikings—like "Hagar the Horrible" in the comics! They don't mention all the battles the Vikings had. I wonder why not.

I didn't know you could take big boats up rivers like the Vikings did.

They really skip here, from the Greeks in B.C. to the Vikings in 982 A.D. I wonder what happened in between. Didn't anybody go sailing then?

Well, they didn't tell who conquered who, but it definitely tells what happened first, second, and so on. This fits in just like the lesson on the Greeks and Romans, telling what came first and how each nation developed and how the Roman gods are all taken from the Greek gods. But it doesn't mention anything about why these sailors were successful or what they really accomplished, like the last part of the Greek and Roman chapter did when it told why they failed. And it doesn't tell what problems the sailors faced. Maybe that will be in the next chapter.

Mirra a good reader, analyzes the text and her own reading as she read. She thinks while she reads and monitors her comprehension. All her comments, questions, paraphrasing, etc. connect to the reading task and help her make sense of it. Larry, on the other hand, does not have these techniques while he reads. His purpose is simply to get through the material and he doesn't attend to any of the important clues in the text that aid comprehension. In fact, he doesn't even know when he understands and when he doesn't. "Listening" to some of his thoughts may reveal why:

Larry:

I can just skip the words in dark print. It's not a sentence, so it must no be important. All those words on the side aren't part of the lesson, either, so that's more stuff I can skip. Good!

I wonder if they'll talk more about fishing. I wonder if this guy Hanno went fishing. I like to fish. I remember when my cousin took me out in his power boat. That was neat. And we caught bigger fish out in the middle of the lake then we could have along the shore. Maybe we'll go again next summer. Gosh, it's only March—summer is still a long way off.

I know about the Greeks. They have gods and goddesses. And they've always got hard names to pronounce, like "Pytheas." I wonder what he was doing in Norway. I've never heard of any Greeks in Norway.

One more section to go and I'll be done. This wasn't so bad. It's only a few pages of stuff to memorize. In Science I've got six pages and in Language Arts I've got eight pages to read. That's all for this week, and I'm almost done with most of it. Maybe next week we'll talk about trains instead of boats.

The "After" Phase: Using Text Structure to Summarize Information

In the "after" phase of reading, good readers summarize and prioritize what was learned by using the text structure as a "frame." Mature readers can use their constructed understanding of a text's structure to determine the main idea of the text, to prioritize and review the salient points, and to see the organization and interrelationships of these points in a coherent whole—a whole that is related together as a web of ideas. Mature readers can also use each act of reading as an opportunity to reflect on their developing understanding of text structure and build their repertoire of text structures, especially as they are used in specific disciplines.

In addition, awareness of the structure of a text helps readers see the proverbial "forest" of the text as a whole through the "trees" of details. They gain a distance from the text and see how it looks as a whole structure. This enables readers to evaluate the text and see how it connects to a larger knowledge base beyond the text. In evaluating the text, readers can ask themselves, "Did the author choose the best structure for presenting the content?, " "What gaps were in the text?," and "Were some pieces of the text left dangling, or were there pieces extraneous to the story or exposition?" Having a clear representation of the text will help reveal what is lacking in the text. Further, such a representation allows a reader to connect the text systematically to other texts and sources of knowledge. The reader can ask of an expository text, "Did the author cover and highlight all the points that I have learned are important in this topic?," and "Did the text clearly lay out the connections that I know are most important in treating this topic?" Of a narrative text, the reader can ask, "Did this story have a beginning, middle, and an end, with events flowing together in a compelling, fluent way?" and "Did the author structure her or his story as well as or as creatively as other authors I've read in this genre?"

Taking a look at what these two students do after reading also reveals the characteristics of good readers versus poor readers. Mirra took out a sheet of paper and wrote one sentence about the Earliest Sailors, the Phoenicians, the Greeks, and the Vikings. She also wrote down a question: When was Eric the Red supposed to have reached North America? Finally, she copies the time line on this sheet of paper and then put these notes in her folder. She then asked the teacher about Hanno and his crew of 30,000 men and women, and with some guidance from her, went to the Library to get more information about this.

Larry finished reading, closed his book, and put it away. He got permission to go to the restroom and then, with the remaining time in the period, got out his math homework and finished the ten fraction problems from the morning's assignment. He felt good that he didn't have any homework tonight, but as with most of his school work, he felt that was as much up to chance as was the successful return of Pytheas from the Arctic Circle.

How Do You Teach Students To Use Text Structure?

The text below describes all five phases of instruction as applied to instruction in text structure. First, Phase I considers the variables associated with learners, the context (e.g., teaching methods, classroom environment and organization, task and purpose set), and the text, and how these variables should be manipulated and related to yield good instruction in text structure. Phase II then addresses the explicit instruction and modeling that can be done to aid students in using text structure to improve comprehension. Phase III and IV move from guided practice, where the teacher actively supports and coaches the students in the use of text structure, to independent practice, where the teacher gradually releases responsibility for using text structure to the students to foster self-regulated use. Finally, in Phase V, assessment gives the teacher and students the feedback they need to refine and further their use of text structure. These phases are described in further below.

Phase I: Planning Instruction to Use Text Structure

Instruction in reading should be planned to foster rich and intensive interactions among context, content, and learner in such a way that the understanding of texts is maximized. In thinking about context, a teacher should consider the purpose set for reading, the organization of the classroom, the teaching methods used, and the nature of the learning tasks. In selecting content, the teacher should consider the considerateness of the text, its simplicity or complexity, and the degree to which students can feel a connection to the topic or story. When thinking about the learner, a teacher should consider the prior knowledge of the students, their attitude about reading, and the strategies they currently know of and can employ. We consider these elements of the reading interaction in more detail below in relation to text structure.

Texts. In planning instruction for students in text structure, it is important to think about the types of structures that will be illustrated and discussed, and the sequencing of the texts used in terms of their complexity. Two points are worth mentioning here: (1) a variety of texts and text structures should be used—the texts should be both narrative and expository, and the expository texts should illustrate the use of the various structures in a wide range of subject matter and (2) when students are unfamiliar with a particular structure, it should initially be presented unencumbered by other instructions in its starkest simplicity, and the text illustrating it should be of high interest and relative familiarity to students.

Students. Students of all ages and abilities need, and are capable of receiving instruction in text structures. There is an unfortunate land still too prevalent misconceptions—fostered by past reading research, reinforced by the use of low-level basals, and perpetuated by an unthinking habit of teaching practice—that claims that elementary students can only "master" stories. The misconception is based on the idea that children are more familiar with story grammars and that expository text is too complex. While it is true that many children are familiar tacitly with the conventions used to tell stories (from "Once upon a time," to "...and they live happily ever after"), they are also familiar with the ways to describe objects by listing attributes or the idea that there are problems (for example, when you're frustrated in getting the cookies on the counter) and ways to deal with those problems (e.g., knocking down the cookie jar with a broom handle). Many young children have also generated such text themselves—they have made lists of gifts they want or written letters to mom from camp explaining why they have decided they want to go back home.

Further, as was indicated above, both narrative and expository texts can vary in complexity. It is possible to have simple exposition which increases in complexity and sophistication as readers mature. The result of the practice of not having elementary students read expository text is reflected in an oft-heard lament of the secondary-school teacher: "My students come to me ill-equipped to read the textbook assignments I give them."

In a related vein, a teacher cannot assume that children are familiar with story grammar. Students from homes where parents either do not have the time, the inclination, or the ability to tell or read stories to their children may not come to school with a knowledge of how a story is structured. A teacher may have to help students dissect the structures of stories, helping students reflect on the common elements of stories and how they are related. Thus, the misconception mentioned above is flawed on several counts: students may not be familiar with story grammar, they may very well be familiar with the cognitive structures that can be embodied in expository texts, and both expository and narrative texts can range from the simple to the complex.

This misconception is sometimes applied to older, "at-risk" students, with similarly negative consequences. These students may only read stories, or read expository material that has a story-like structure. Very often, they are not presented with expository reading using actual expository structures. This means that they are, in effect, cut off from an opportunity to take higher-level classes, since these will largely rely on expository text they have not been prepared to read. And since there are intimate relations between reading, writing, and thinking, it also means that their writing abilities will not be developed to the point where they can compose extended, coherent essays and, most profoundly, it means that they are unlikely to achieve thinking marked by nuance and cognitive complexity. Furthermore, significant recent research indicates that poor readers *benefit the most* from explicit instruction in text structures. At-risk students taught about story grammars and mapping of expository texts have demonstrate significant increases in their ability to recall and comprehend stories.

> **Context.** Opportunities for using text structure abound. It is important to remember that text structures generally represent more general ways to organize experience, represent knowledge, and frame thinking. Thus, any act of recounting events, describing situations, listing the attributes of objects and comparing them to other objects, explaining processes, solving problems, or making decisions can be reflected upon, analyzed, represented graphically as a structure, and transformed into text. To see these acts as learning opportunities that can ultimately be captured in writing is to help build understanding of reading. This is, after all, what the author did in producing text. Reading and writing, comprehension and composition, feed upon one another in a virtuous cycle; students learn how to understand text by writing text, and reading text teaches students how to write better, use structures more skillfully, and signal text structure more effectively to their readers.

Thus, the tasks used to teach text structure should emphasize and make use of this interaction among the activities of thinking, reading, and writing. Thinking is stimulated by reading and structured and clarified in writing. Writing crystallizes thinking, and reading is a process of stimulating one's own thinking by engaging the thinking of others (name, authors). Reading is not a skill, it's not even a strategy—it's a way of negotiating and sharing meaning among thinking persons in a community of inquiry; it's a form of life.

Phase II: Explicit Instruction and Modeling

Explicit instruction is an excellent way to introduce the notion of text structure. Explicit instruction means that you, the teacher, explain, demonstrate, and model what is needed to use text structure as an aid to comprehension. You pose these questions to students:

- What is text structure?
- How do I use text structure in reading?
- When do I use text structure?
- Where do I use text structure?
- Why is text structure important and helpful?

Some suggestions about how to engage students in these questions and help them answer them are made below.

Defining text structure for students. Writing is the product of thoughtful, systematic reflection on life; reading is an encounter with this reflection to grasp the soul of words (to paraphrase Paolo Freire). A natural way to begin to introduce the notion of text structure is to talk about how we organize our experiences—how we take discrete facts and figures, and turn them into information by grouping them together in categories, and then how we turn this information into knowledge by figuring out patterns and principles that explain the information, that give it meaning. Or, in the case of narrative, how we take an event or series of events, give it a context, describe what motivated actors in the setting and their responses to events, and spell out the results of the events to make a story. Thus, you can motivate the concept of text structure by having the class discuss more generally how they give structure to their experiences. Text is simply a crystallization of this "effort after meaning."

You can also seek to define text structure by using concrete analogies. This can be especially effective with young children, where the distinction between content and structure can be a difficult one to grasp. For example, a teacher could start a discussion about the distinction by showing students a picture of a two-story house made of wood, and a one-story house. They could come to see that while both are made of the same material, they differ in levels, placement of windows and doors, pitch of the roof, etc. Or you could ask students to replicate the design (structure) of a tower you have made out of cardboard boxes with the various different materials they have (such as wooden boxes or margarine containers) to get a sense of the difference between content and structure. Based on this developed understanding, you could go on to explore the notion of text structure as the way in which the author organizes the material (or content) of her or his writing, just as a builder constructs a house by organizing the building materials.

These discussions and activities, in addition to answering the question "What is text structure?," also suggest the answers to the questions about when and where to use text structure. In a sense, "all the time" and "everywhere" are not facetious answers. We always need to organize information—learning is largely a matter of organizing information into schemata, or frames, or reorganizing those schemata when the information doesn't fit very well in current ones. In reading, in writing, in oral discourse, in thinking in general, we need to organize our thoughts and feelings into coherent structures. To recognize these structures is often to comprehend and understand how what is being said or what is written "hangs together" as a whole. Thus, text structure is a powerful notion that extends to all communicative contexts and applies to all instances of focused thinking. Helping students understand and use text structure is a potent way of helping them not only read, write, and speak, but also think.

Providing and explaining graphic organizers. You can help students answer the question "How do I use text structure?" by explaining how to use it and by modeling its use. Text structure is usually used by representing it as a graphic organizer—a visual way of mapping information in a text. Much work has been done on the sort of graphic organizers that are used and available in structuring text in particular and knowledge more generally. Some organizers have great generality (problem-solution, cause-effect, comparison-contrast, etc.), while others are specific to a content domain (often called "frames"). The region frame, for example, is a content-specific frame that includes these categories: surface features of the region, weather conditions, landmarks, and products (natural resources, crops, etc.). When readers of geography are familiar with this frame, they know what information to expect as they read, and they have a framework for organizing this information, which helps them prioritize and remember the material.

More general organizers can be classified into three types, name those:

- containing one major element or idea and supporting information
- describing a sequence
- containing two or more important elements or ideas.

Some of these frames were considered above in discussing expository text structures. The types of organization frames to be used with texts containing only one major element are description, proposition/support, argumentation for a conclusion, and concept/definition. The organizational frames to be used with texts describing a sequence are sequence of events and goal/action/outcome. Lastly, the compare/contrast, problem/solution, cause/effect, and interaction/organizational frameworks work well with texts containing two or more important elements or ideas. (The last three—problem/solution, cause/effect, and interaction frame—are actually a mix of sequence and two or more elements or ideas.)

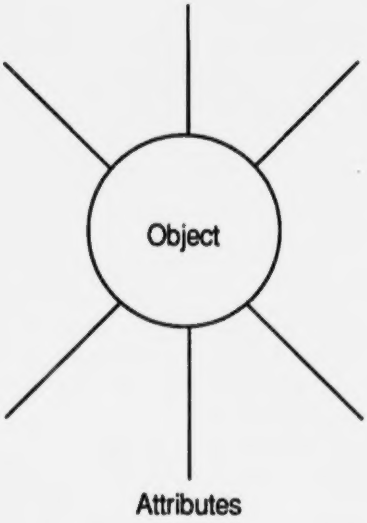
You can provide direct instruction in the graphic organizers that represent text structures by discussing the various organizers presented on the following pages. You can introduce the graphic organizer by putting it up on the board or on the projector; then pick a topic appropriate to the organizer, and ask students what they already know about the topic. As students offer their ideas and facts, show them how the information can be organized by placing it in the appropriate spaces on the organizer. Gradually, students should be able to predict where the information they offer should be placed on the graphic. After they become comfortable with the organizer, you can have them work in small groups using the organizer to activate their prior knowledge about reading and predicting what will be discussed in a text, then they can read the text together using the organizer as a guide for assimilating information, and finally they can use the organizer to summarize the text, either in oral or written form.

Texts Containing Only One Major Element or Idea and Supporting Information

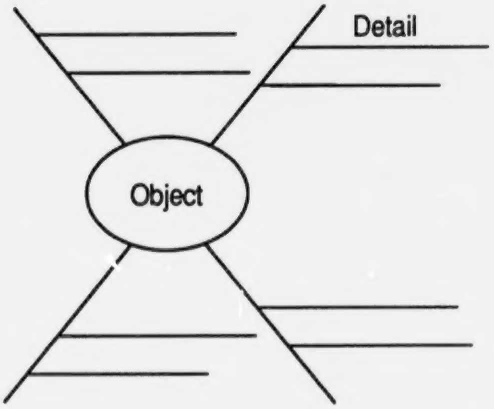
Description. Descriptive frames and categories depend somewhat on the nature of what is being described. For example, a description in literature focuses on characters, places, and objects. In such descriptions, readers must identify what is being described and its attributes. In geography, regions are usually described using such categories as land, people, and government. Descriptive tasks are sometimes to referred to as a list or collection structures because the attributes may be described in any order.

Descriptive Graphic Structures

Description



Spider Map



Signal Words

also
and
besides
further
furthermore
in addition
moreover
too

Frame Questions

What is it?

Where can it be found?

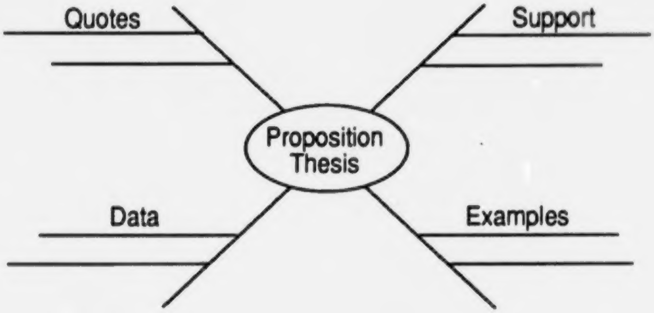
What does it look like?

What are its attributes?

Proposition/Support. Proposition/support is a very common paragraph structure. In its most simple form, it is a statement plus information supporting the statement. Frame categories for a theme paragraph, for example, include the statement of the theme, elaboration and interpretation of the theme, and supporting information, such as examples, quotes, and data. Proposition/support paragraphs often have both major and minor supporting ideas.

This structure is sometimes difficult to identify because it uses few easily recognizable signal words.

Proposition/Support Graphic Structure



Signal Words

- accepting the idea
- for example
- above all
- granted that
- suggest
- more important
- of course
- indicate
- indeed

Frame Questions

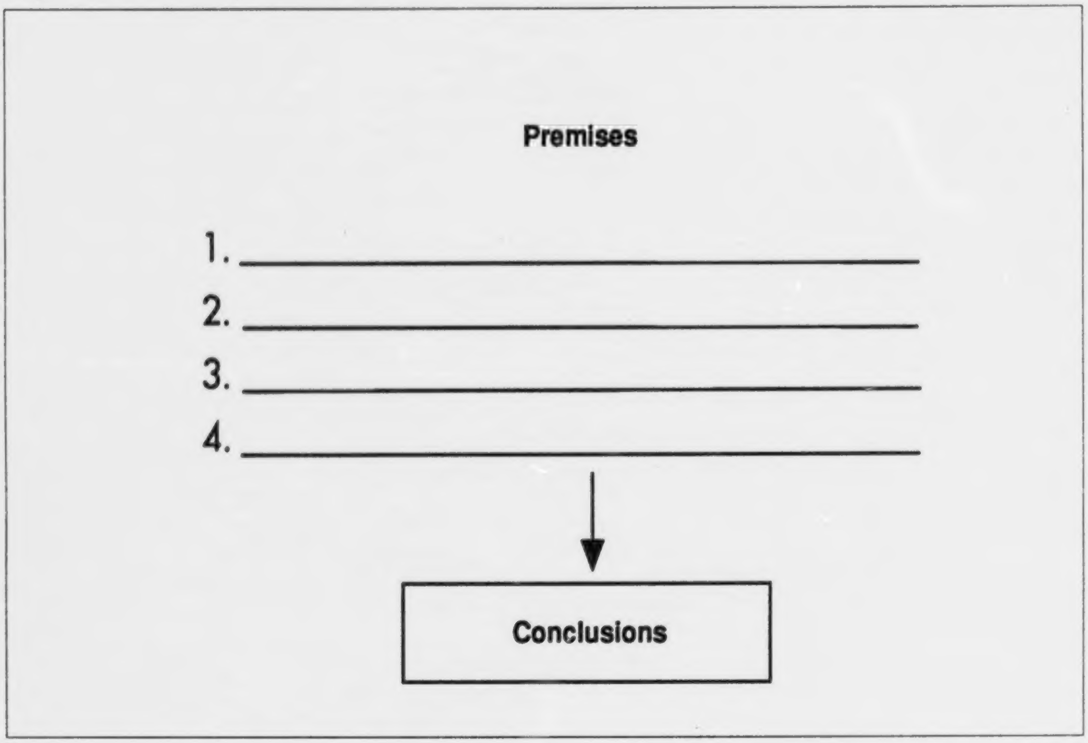
What is the proposition/thesis?

How is it supported?

- Examples?
- Quotes?
- Data?

Argumentation for a Conclusion. This frame also provides for varying degrees of complexity. Simple arguments contain only two categories of information: the statement of a conclusion (an opinion or action) and premises (reasons, examples, facts, quotes, etc.) that support the conclusion. More complex argumentation frames also contain complex chains of reasoning and explanations of the reasons. The critical task in comprehending an argument is evaluating the logic linking the premises to the conclusion. This includes questioning the adequacy of the information and the quality of reasoning.

Argumentation Graphic Structure



Signal Words

for these reasons	if	then	so that
in conclusion	therefore	hence	

Frame Questions

What is the conclusion?

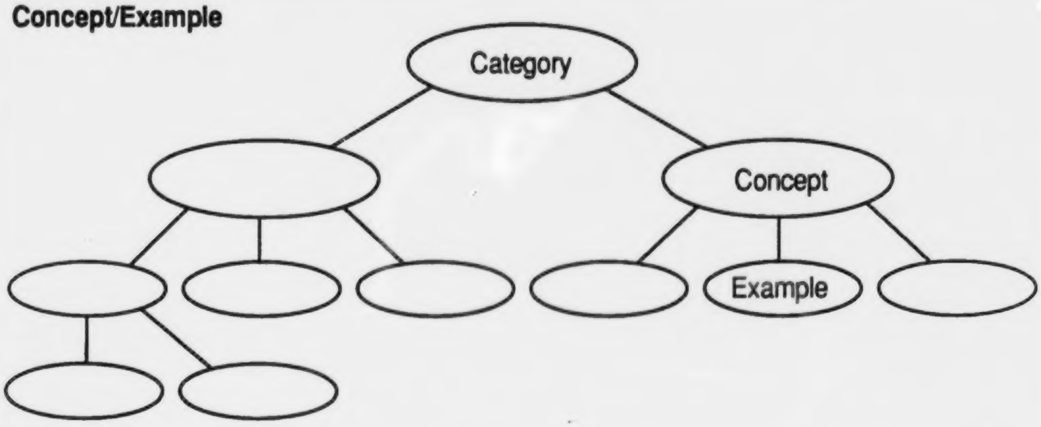
What are the arguments for the conclusion?

What are the premises that support the conclusion?

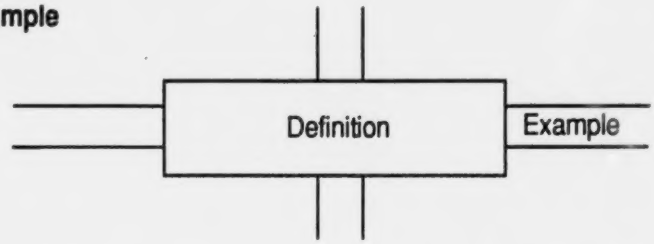
Concept/Definition. To understand a concept, it is important to know what it is, what category it belongs to, and its critical attributes. Readers also must connect new concepts with what they already know by using examples, analogies, or comparisons.

Concept/Definition Graphic Structures

Concept/Example



Definition/Example



Signal Words

for example	specifically	as	which is
e.g.	for instance	such as	like

Frame Questions

What is the concept?

What category does it belong to?

What are its critical attributes?

How does it work?

What does it do?

What are its functions?

What are examples of it?

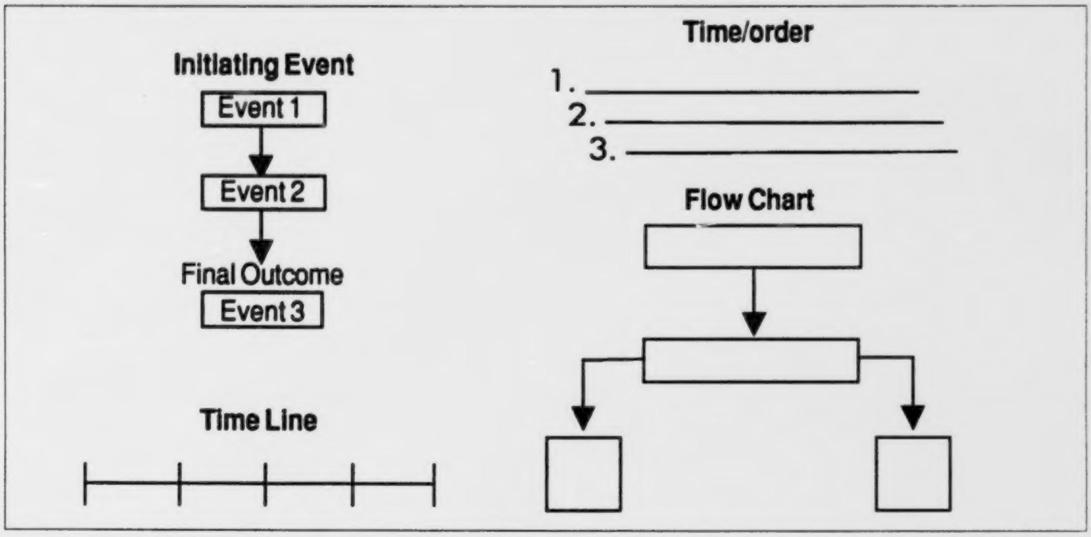
What are not examples of it?

Texts Describing a Sequence

Sequence Texts. An important task when reading sequence texts is understanding and predicting the correct sequence of events. Events in sequential structures may be in chronological order or some other logical order. Typical sequential texts are steps in a procedure (e.g., how milk is pasteurized) and stages of development (e.g., the life cycle of primates). Literature and history texts involve flashbacks and forecasts.

To understand sequential tasks, readers should identify the object, procedure, or initiating event; describe the stages, steps, or series of events that follow, showing how one leads to another; and describe the final outcome.

Sequential Text Graphic Structures



Signal Words

finally
first
afterward
before

second
next
meanwhile
subsequently

then
last
now
presently

to begin with
later
previously
ultimately

Frame Questions

What is the subject or object?

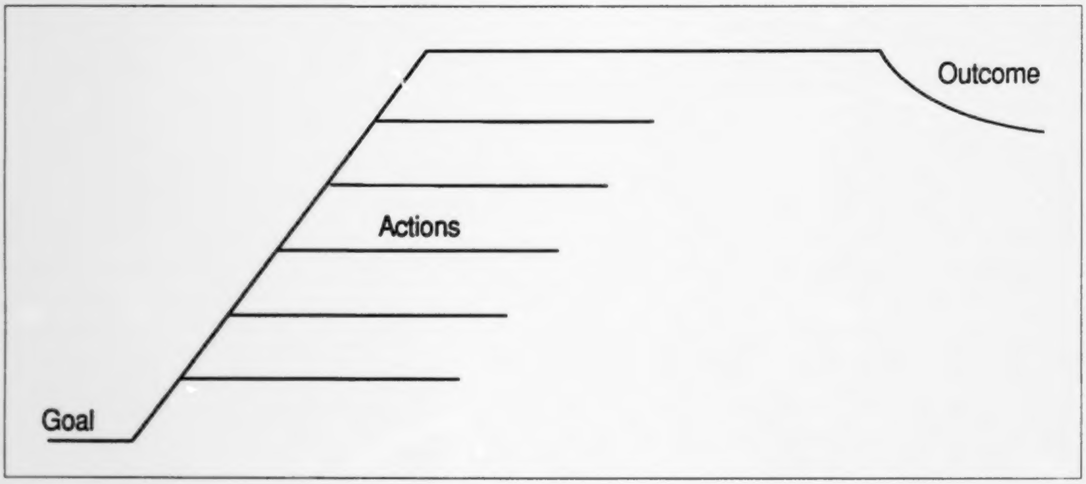
How did it begin?

What are the steps/stages?

What is the outcome?

Goal/Action/Outcome. Much of human behavior in literature or any narrative is goal-oriented (e.g., winning despite a handicap or surviving under difficult circumstances). A useful way to summarize goal-directed behavior is to identify the goals, actions, and outcomes of the person or group depicted in the text. Clearly, there is a sequential component in goal/action/outcome frames; often, however, the goal is not obviously early in the text.

Goal/Action/Outcome Graphic Structure



UNIT 4

Signal Words

if providing	although whenever	unless

Frame Questions

Who are the characters?

What is their goal?

What are the actions?

What is the outcome?

Texts Containing Two or More Important Elements or Ideas

Compare/Contrast. Compare/Contrast structures identify the points that are being compared, the ways in which they are similar, and the ways in which they are different. Sometimes the structures include a summary statement indicating the points compared are more alike than different.

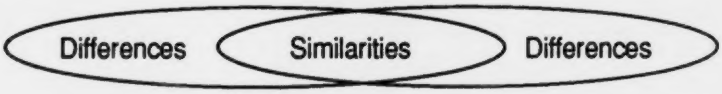
One can organize compare/contrast structures in different ways: one can present the whole set of similarities followed by the whole set of differences; one can make point by point comparisons of the similarities and differences; and one can mix these two patterns.

Compare/Contrast Graphic Structures

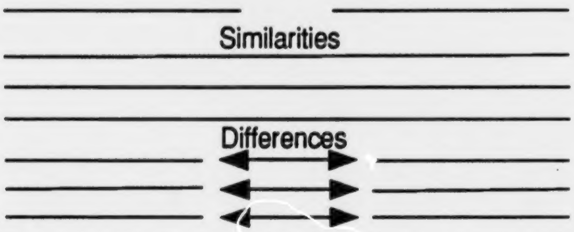
Compare/Contrast Matrix

	Attributes	Object 1	Object 2
1.			
2.			
3.			

Venn Diagram



Similar/Different



Signal Words

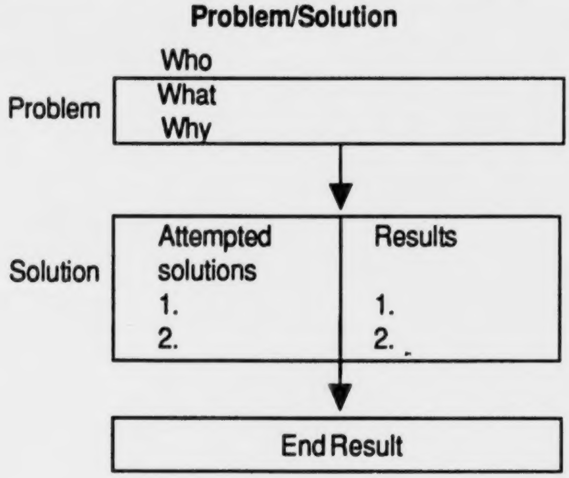
as well as
equally important
but
conversely
despite
however
at the same time
likewise
on the contrary
on the other hand
yet
regardless
similarly
while
still
though
nevertheless
whereas

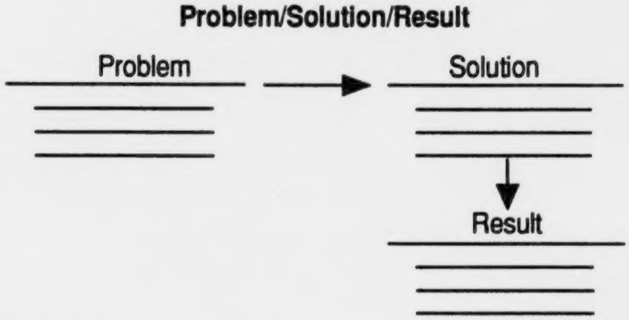
Frame Questions

What are the elements?
How are they alike?
How are they different?
What is the conclusion?

Problem/Solution. Most problem-solving frames pertaining to people in fiction and history focus on identifying who had the problem, the general definition of the problem, its causes and effects, actions taken to solve the problem, and the effects of the actions. Such frames also may contain elements of decision making, such as defining available options, resources, and the consequences of acting on each option. Problem/solution frames for literature may focus on how characters look for solutions and why they choose certain solutions. Problem/solution frames also have a sequential component.

Problem/Solution Graphic Structure





Signal Words

because
for this reason
therefore
instead of
notwithstanding

although
even though
unless
instead of
otherwise

in spite of
either/or
neither/nor
rather than

Frame Questions

Who has the problem?

What is the problem?

What is causing the problem?

What are the negative effects?

Are there are positive effects?

What actions are taken to solve the problem?

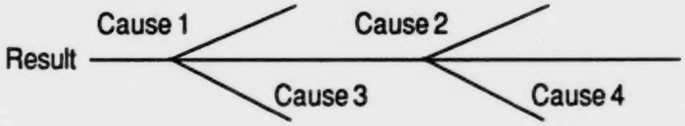
What are the consequences?

What further problems result?

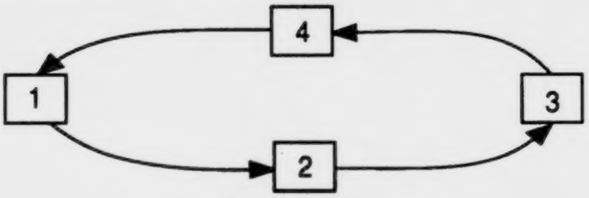
Cause/Effect. These frames involves establishing an effect and its cause or causes. Often they explain how causes are linked to effects. Complex cause/effect frames may involve a sequential chain of causes and/or interaction or various factors as well as multiple effects. These frames are sequential; however, descriptions often begin with effects and then discuss causes.

Cause/Effect Graphic Structure

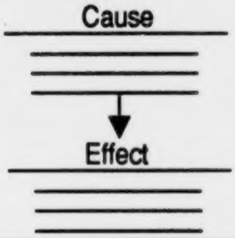
Fishbone Map



Cycle



Cause/Effect



Signal Words

accordingly
because
consequently
for this reason
since
so
hence
this leads to
then
thus
therefore
nevertheless
so that
as a result
if…then

Frame Questions

What is the effect or result?

What are the causes?

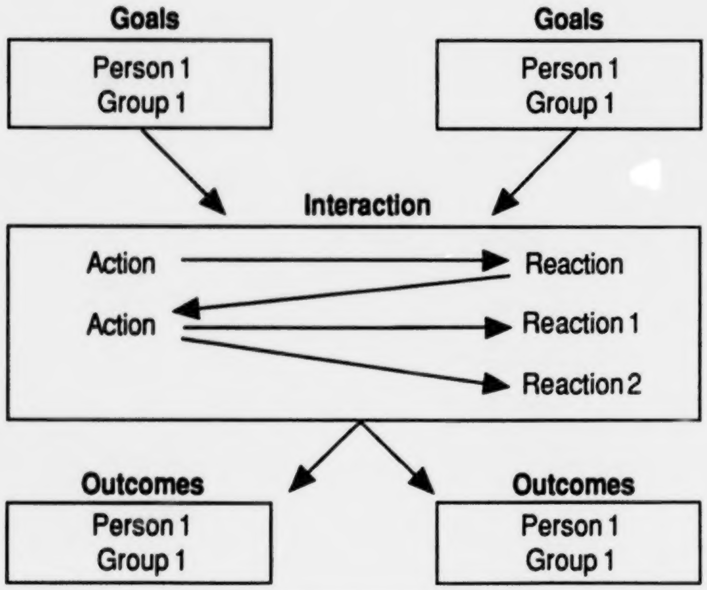
What are the factors that cause x?

Which ones are most important?

How do the factors interrelate?

Interaction (Cooperation and Conflict). Most literature involves the interaction of two or more persons or groups (e.g., the interaction of a child and an animal or a child and his or her parents). Interaction frames contain both sequential and compare/contrast structures.

Interaction Graphic Structure



Frame Questions

Who are the persons/group being depicted?

What are their goals?

What is the nature of their interaction: conflict or cooperation

How do they act and react?

What is the outcome for each person or group?

Modeling use of text structure in comprehension. You, the teacher, can talk aloud before students to demonstrate the process of using text structure to enhance comprehension. You can think aloud about how you use text structure before, during, and after reading:

> *Before reading...*
> Think aloud as you try to guess the structure of the text from skimming headings and subheadings, looking at graphics, and taking note of signal words;
>
> *During reading...*
> Think aloud as you check, alter, elaborate, or restructure your preliminary model during reading; and
>
> *After reading...*
> Think aloud as you use the text structure explicitly to summarize the gist of the text and review its major points.

You can also think aloud as you determine what graphic organizer would best reflect the text structure, and show students how you would draw it to help you before, during and after reading.

Discussing the usefulness of employing text structures to aid comprehension. Finally, a teacher can discuss the question, "Why is text structure important useful?" We've already touched upon some of the reasons. Text structure helps us organize and retain information. It shows us the "big picture" of how all the main ideas in a text fit together. It helps us prioritize information and generate summaries. Text structure can also help us think better about how to write ourselves, and help us think in more organized ways in all the subject areas. As you, the teacher, help students use text structure in their reading and writing, take time to discuss the power and benefits of using text structure.

Example

Jo Ann Piccolo, writing in the May 1987 issue of *The Reading Teacher*, recommended the following lessons for introducing and teaching each type of expository structure: (1) define and label the structure; (2) examine model paragraphs and the corresponding graphic organizer to find the critical attributes of each; (3) graphic organizer; (4) compose an original organizer and paragraph; and (5) read expository texts to find which patterns the author used. The lessons she used with 5th graders are reprinted below.

Lesson 1

Step 1: Explain to the class that expository text structure is a name given to the organization of paragraphs that give the reader specific information about a topic. Just as a story contains characters, setting, episodes of the plot, and a goal, expository paragraphs contain a topic sentence with supporting details. And, just as there are different types of stories like fairy tales, tall tales, and myths, there are different types of paragraph structures.

Step 2: Introduce the label (of the expository structure) and define it. Explain that each text structure answers a specific question (see Figure 1). After this, show the class the graphic organizer for the paragraph on the overhead projector (Figure 2). Explain that the graphic organizer is used to show the pattern of a paragraph.

Step 3: Distribute copies of the paragraph that corresponds to the graphic organizer. Read the paragraph together. Then ask the class to try to locate the signal word or phrases in the paragraph that clues the reader to the organization. Make a list of these words on a chart that gives the name of the structure and its definition along with a picture of the graphic organizer.

Step 4: Explain the topic sentences clue the reader that a particular structure is being used by the author. Sequential paragraphs, for example, have topic sentences that may include the word "steps," or phrases like "In order to make... you must follow these directions."

Step 5: Using another examples of a paragraph with that same pattern, give the class a copy of the graphic organizer. The graphic organizer will include the topic sentence. Then, on the overhead, model the writing of a paragraph that follows the graphic organizer. Do this as a class. Make sure that the students use the appropriate signal words or phrases in the paragraph.

FIGURE 1

Questions students can use to help identify text structures or write original paragraphs

Descriptive—Do you want to tell the reader what something is?

Sequence—Do you want to tell someone how to do something or make something?

Enumerative—Do you want to give a specific list of things that are related to the topic and tell abouteach?

Cause/Effect—Do you want to give reasons why something happens or exists?

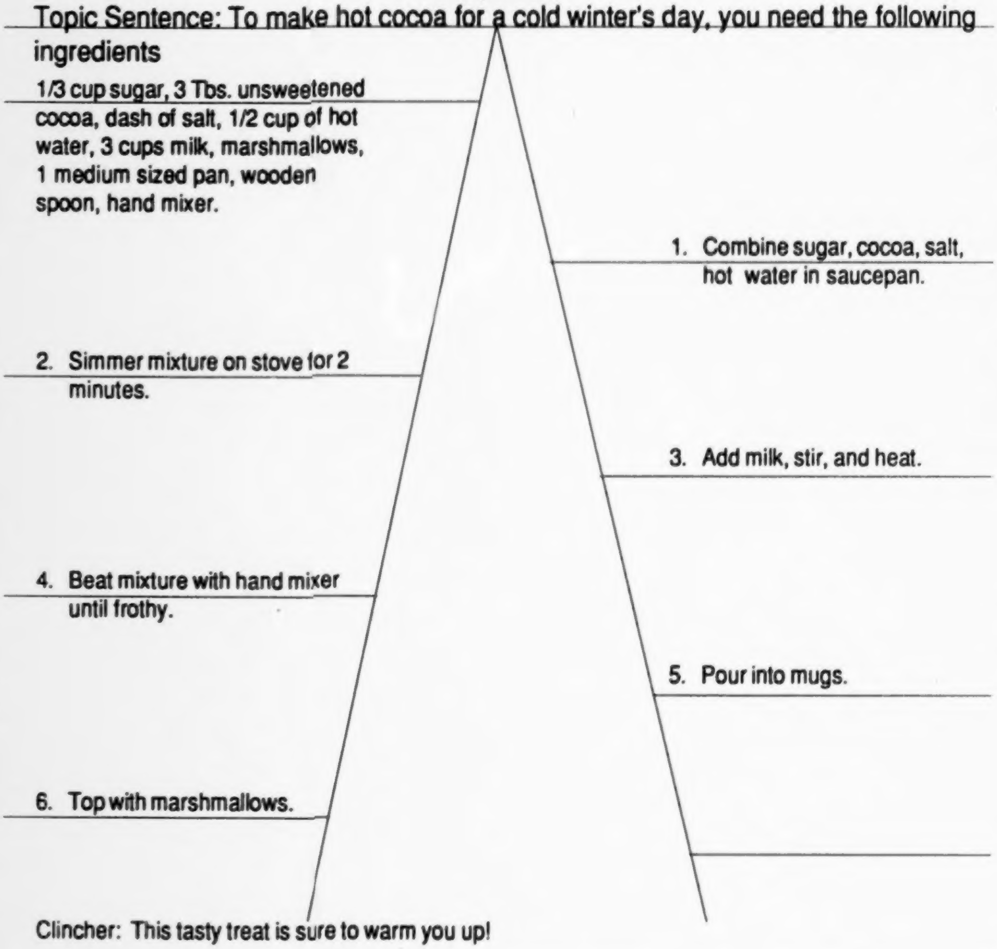
Problem/Solution—Do you want to state some sort of problem related to your subject and offer some solutions?

Comparison/Contrast—Do you want to show the similarities or differences between a certain topic and the topic you are writing about?

FIGURE 2

SAMPLE GRAPHIC ORGANIZER AND THE CORRESPONDING SEQUENTIAL PARAGRAPH

Sequence



Topic Sentence: To make hot cocoa for a cold winter's day, you need the following ingredients

1/3 cup sugar, 3 Tbs. unsweetened cocoa, dash of salt, 1/2 cup of hot water, 3 cups milk, marshmallows, 1 medium sized pan, wooden spoon, hand mixer.

1. Combine sugar, cocoa, salt, hot water in saucepan.
2. Simmer mixture on stove for 2 minutes.
3. Add milk, stir, and heat.
4. Beat mixture with hand mixer until frothy.
5. Pour into mugs.
6. Top with marshmallows.

Clincher: This tasty treat is sure to warm you up!

How to Make Hot Cocoa

To make hot cocoa for a cold winter's day, you need the following ingredients: 1/3 cup of sugar, 3 tablespoons of unsweetened cocoa, a dash of salt, 1/2 cup of hot water, 3 cups of milk, and some miniature marshmallows. You will also need a medium sized saucepan, a wooden spoon, a hand mixer, and mugs. First combine the sugar, the cocoa, a dash of salt and the hot water in the saucepan. After you do this, put the mixture on the stove and simmer for 2 minutes. Next, add the milk, stir, and heat. Finally, beat this mixture with a hand mixer until frothy. You are now ready to pour the hot cocoa into mugs and top with the marshmallows. This tasty treat is sure to warm you up!

Lesson 2

Step 1: Instruct the students to choose a topic about which they want to write. For example, when using the sequential structure, this topic can be how to make something.

Step 2: Have each student make a jot list which contains all the details that are to be included in the paragraph. A sequential jot list, for example, may contain all the needed materials and the steps involved in the process.

Step 3: Give each student a copy of the graphic organizer and instruct them to organize a paragraph on the organizer. If they need practice in writing topic sentences, it should be done at this point through modeling.

Step 4: When the organizer has been completed, have the students compose original paragraphs.

Lesson 3

Step 1: From the class collection of paragraphs, choose good examples and poor examples and share them. With the good ones, point out the strength of the topic sentence and the use of appropriate signal words. With the poor samples, have the students participate in the revision process by making suggestions for changes.

Step 2: Following the group activity, hand the papers back so the students can revise and correct their own paragraphs.

Lesson 4

The purpose of this lesson is to show the students how to extract information from a paragraph and put it into simple terms using the graphic organizer to guide them. Using another model, copy the paragraph for each student, and make a transparency of a blank organizer. As a class, read the paragraph and fill in the organizer. This activity also prepares them for using graphic organizers for notetaking, which will be discussed later.

Lesson 5

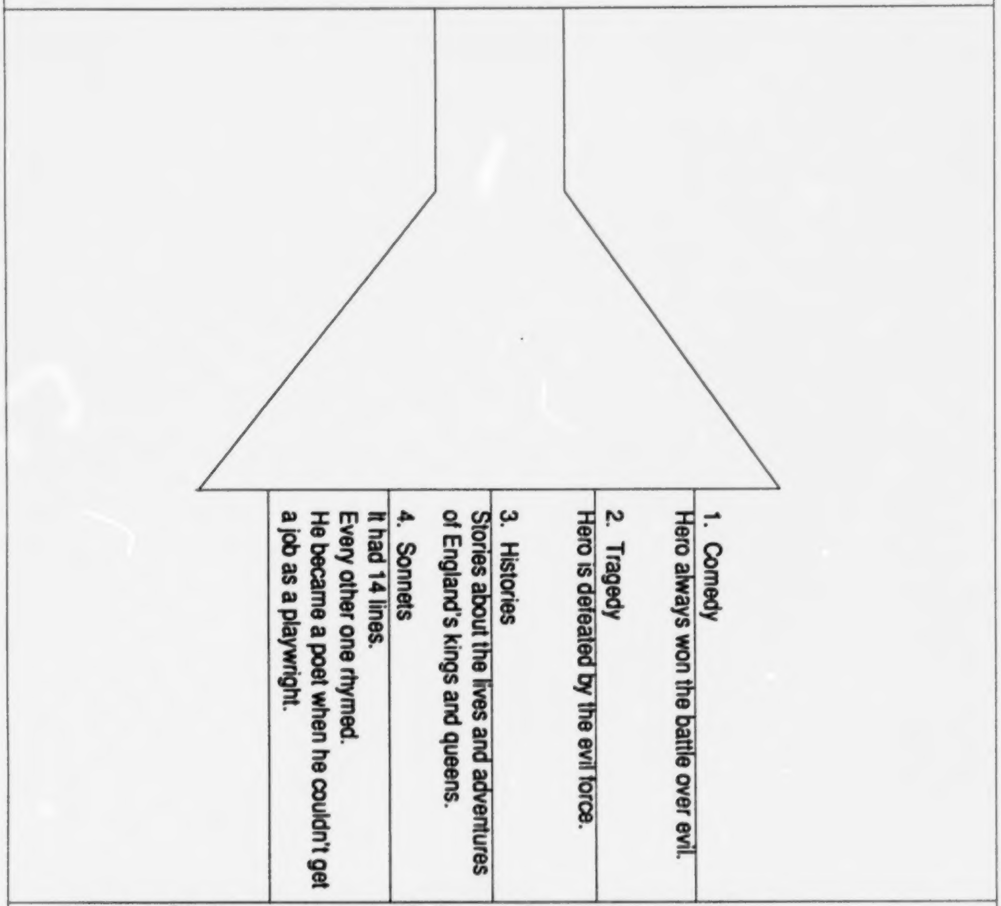
When the students are familiar with the text structures, the signal words, the graphic organizer, and the corresponding text structure question, give them practice in locating and naming patterns used by authors in content area texts, encyclopedias, or other reference books. This activity will show the students that text book authors use these structures to organize information. Additionally, it builds a foundation for notetaking.

FIGURE 3

MODEL ORGANIZER FOR ENUMERATIVE PARAGRAPH

Enumerative

Topic Sentence: William Shakespeare wrote three kinds of plays and a form of poetry called sonnets.



1. Comedy
Hero always won the battle over evil.

2. Tragedy
Hero is defeated by the evil force.

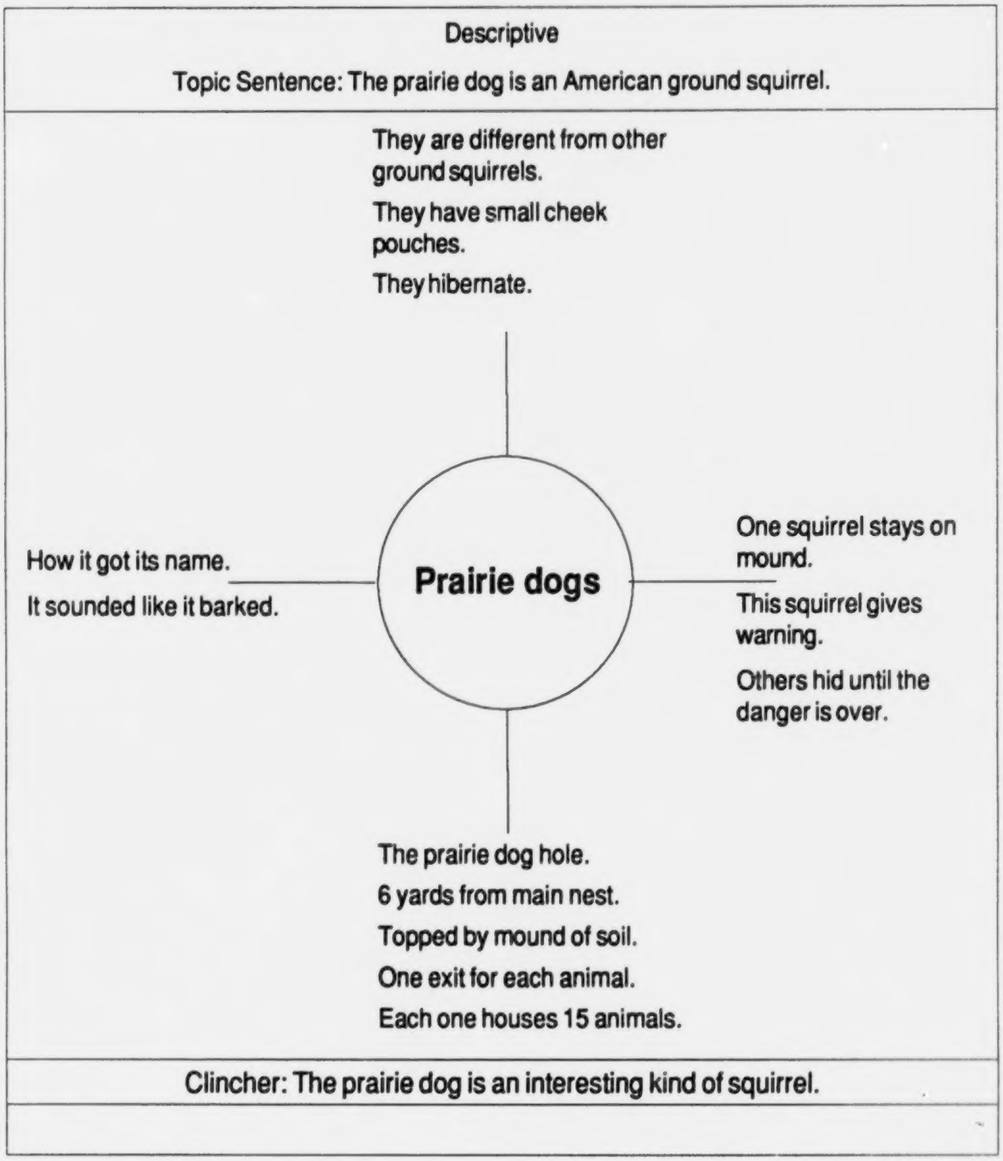
3. Histories
Stories about the lives and adventures of England's kings and queens.

4. Sonnets
It had 14 lines.
Every other one rhymed.
He became a poet when he couldn't get a job as a playwright.

Clincher: Shakespeare wrote 38 plays and numerous sonnets.

FIGURE 4

MODEL ORGANIZER FOR DESCRIPTIVE PARAGRAPH



Descriptive

Topic Sentence: The prairie dog is an American ground squirrel.

Prairie dogs

They are different from other ground squirrels.

They have small cheek pouches.

They hibernate.

How it got its name.

It sounded like it barked.

One squirrel stays on mound.

This squirrel gives warning.

Others hid until the danger is over.

The prairie dog hole.

6 yards from main nest.

Topped by mound of soil.

One exit for each animal.

Each one houses 15 animals.

Clincher: The prairie dog is an interesting kind of squirrel.

Phase III: Guided Practice

In guided practice, you can have students try to identify various text structures on their own or in groups, as you assist and coach them. Review briefly how you have modeled identifying text structures in the past, then have them attempt to identify structures in text shared in small groups. Walk about and coach the groups as necessary. After they become capable in identifying text structures in groups and on their own, you can try the following activities which require a more sophisticated understanding of text structure.

> **Generating text employing various structures.** You can have students consider a body of information either as a whole-class or in small groups. Have them think about the best way they can organize this information, keeping in mind the text structures and graphic organizers they have learned about. Finally, have students compose text employing the structure or structures that they have learned and that they judge appropriate for the information at hand. Try this with a wide variety of information in a number of content areas and with different levels of complexity, so that students are prompted to deploy a wide repertoire of text struc tures and to transfer it to all appropriate learning tasks.

> **Rewriting text.** Students can work together to rewrite text which is poorly structured. They can provide headings and subheadings where there are too few or none, add signal words, and think about how to group information under more coherent clusters. Or they can rewrite text by taking content relayed through one structure (such as a story) and convert it into another.

Phase IV: Independent Practice

Ultimately, you want to have students be able to identify and use text structures on their own. After students have practiced using text structure to aid comprehension with familiar content and texts, they are then ready (based on your assessment) to move into unfamiliar content and tests. In trying to map out this new unknown terrain, they should know, by their own initiative, how to skim for text structure before starting the reading task; how to construct graphic organizers appropriate to the text structure; how to use their organizers as they read to better compehend the text, and how to modify, elaborate, or restructure the organizers as appropriate, and how to use the organizers to summarize their knowledge and connect it to what they have learned in the past and what they want to learn in the future.

This process of moving toward greater independence in the use of text structure—that is, of learning how to apply and transfer the notion of text structure to a variety of authentic learning situations—is a gradual process, and one which, in a sense, is never-ending. Throughout our lives, we struggle with how to best organize information—how to make sense out of a mountain of data or string together a coherent story of events out of the incessant flow of happening—and, if we are committed to lifelong learning, we constantly expand, refine, and find widening arenas of application for the frames or organizational patterns we develop. In becoming independent, students learn how to take this development of organizational patterns into their own hands. We, as teachers, facilitate this when we gradually release responsibility for identifying text structures and constructing graphic organizers to students.

Phase V: Assessment

There are many approaches you can take to assessment. Your assessment will primarily take place through observation, interviewing students, listening to student-led dialogue, asking questions to the whole class, and structuring tasks and projects that induce use of text structures. You can watch to see if students are skimming before they read, using graphic organizers to process information as they read, and employing frames to summarize what they have learned. You can interview students one-to-one to see what they do as they plan to read. Do they take into consideration the text structure? What clues do they look for to gain a sense of text structure? Do they know how to map out their guess about text structure? Do they draw a graphic organizers to help them organize information as they read? You can listen to student-led discussions to see whether they are asking each other such questions. And you can ask the whole class directly what they do before, during, and after reading, and see to what extent text structure plays a role in their answers.

There are also various performance-based assessments of the use of text structure that you can employ, such as the following:

- have students make graphic representations of text and see how accurately they reflect the structure of the material, and are appropriate in level of detail to the instructional purpose;
- take a selection that's typical of what a student would read, break it into parts, mix it up, and see if students can reconstruct it to make it a coherent text; and
- have students think aloud as they read a text, and see if and how they are processing the text with respect to its structure.

Whether such pre-reading activity occurs and the extent to which it incorporates a knowledge of text structure is a good indication that students' understanding of text structure is strong and useful to them in comprehension, and that your instruction has been successful.

Reflections

Young children, like older students, need to develop proficiency in dealing with expository text that is simple, but that will acquaint them with text other than narrative. Using the new definition of reading, young readers can, indeed, be expected to read and learn from expository text such as science, social studies, and health books. Of course, there may be some barriers to young reader's comprehension such as a limited background knowledge and the unfamiliar organization of texts. However, strategies such as KWL and semantic mapping are effective ways to help young students understand text structure.

In teaching the usage of text structure, is there any particular order or sequence in which I should teach the structures?

Teachers have varying opinions as, first, the importance of necessity of teaching text structure; and secondly, the sequence of instruction. Based on research, it appears that teaching text structure in the following order is most effective: (1) Sequence; (2) Enumerative; 3) Cause/Effect/ (4) Descriptive; (5) Problem/Solution; and (6) Comparison/Contrast. The rational for teaching this sequence is that young children are most familiar with time-gaged structure in narrative text. Structures dealing with cause/effect, problem/solution, and comparison/contrast are more difficult conceptually because students must have an understanding of the difference between a "cause" and the resultant "effect."

What do I do if students are unable to remember all of the text structures mentioned in the previous question?

Teaching the various text structures should not be a lesson in "memorization and total recall." As with all good instruction, these structures should be taught in relation to the purpose, content, and context and not in an isolated fashion. First, you will model the process, calling attention to what structures are being utilized. For example, if the lesson is in science, and it is about what happens when plants do not receive enough light, air, and water, then you would explain that this is a "cause/effect" type text structure. As the students are exposed to other text structures, simply point out that "this particular structure"' is an example of a compare/contrast, sequence, etc. have them provide the rationale. Through constant use of the terms and application to the various content area texts, the students will eventually learn to recognize these text structures without the traditional, and often, ineffective "skill and drill."

If my students have a good working knowledge of text structure, will this knowledge solve the problems they have with word recognition and comprehension?

If students have an understanding of text structure, it will help them as they interact with text thus, enhancing their construction of meaning from both narrative and expository text. However, no one strategy is the "cure all" for the myriad of reading problems students may have. It takes the knowledge, integration, and usage of the different strategies, such as those covered in SRP, e.g., prior knowledge, word meaning, and inferencing, to make learning relevant. When students are able to use their metacognitive skills to determine which strategy to use or how to "tie" or connect the appropriate strategies in a particular reading situation, then they, indeed, are well on their way to becoming independent learners and strategic readers.

ANNOTATED BIBLIOGRAPHY (in suggested order)

Black, H., & Black, S. (1990). Book II: *Organizing Thinking: Graphic Organizers.* Pacific Grove, CA: Midwest Publications, Critical Thinking Press & Software.

This comprehensive guide to graphic organizers suggests lesson plans that feature the use of graphic organizers to illustrate how information is related. The authors demonstrate that the graphic organizers serves as "mental maps" to depict complex relationships in many subject areas and at all grade levels. Lessons in the book are designed to supplement text material and to accompany corresponding content objects. Blackline master graphs are provided for a wide variety of graphic organizers.

Cook, D. M. (1989). *Strategic learning in the content areas.* (Bulletin No. 9310). Madison, WI: Wisconsin Department of Public Instruction.

This is a very "practitioner-friendly" guide to using graphic organizers as part of a broader effort to develop strategic readers. It discusses the use of organizers as an aid to comprehension in all major content areas. In addition, the guide provides a comprehensive treatment of teaching/learning strategies that incorporate text structure, such as story mapping and graphic outlining.

Jones, B.F., Palincsar, A.S., Ogle, D.S., & Carr, E.G. (1987). *Strategic teaching and learning: Cognitive instruction in the content areas.* Alexandria, VA: Association for Supervision and Curriculum Development and Elmhurst, IL: North Central Regional Educational Laboratory.

This book highlights the importance of organizational patterns in learning from text, while relating this emphasis to a broader notion of strategic teaching and learning. The instructional framework used in these Units draws from this book. The approach is applied in various chapters on instruction in science, social studies, mathematics, and literature. Each of these chapters emphasize the frames and structures important in its content area.

Jones, B.F., Pierce, J., & Hunter, B. (1989, January). Teaching students to construct graphic representations. *Educational Leadership, 46*: 20-25.

This article argues that when students construct graphic representations of text they read, they better understand which ideas in the text are important, how they relate, and what points are unclear. This article provides generic models and guidelines for constructing graphic representations and offers suggestions for teaching students to represent prose text in mental models and graphic outlines.

Jones, B.F., Tinzmann, M.B., Thelen, J., et al. (1990). *Breakthroughs: Strategies for thinking.* Columbus, OH: Zaner-Bloser, Inc.

This is a thinking-based curriculum series for Grades 1-8. It teaches thinking strategies and skills within real-life issues and problems, such as rain forest destruction and waste management. Throughout the materials, graphic organizers are used to help students link their prior knowledge to new learning and organize information they learn from text in the units.

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5 UNIT

Word Meaning

Unit Overview

Contents:

A. Suggestions for Staff Development Activities

B. Unit Essay

Focus—Introduces the importance of vocabulary knowledge in a reading situation.

1. What is effective vocabulary instruction?
2. How should vocabulary words be selected?
3. How should vocabulary words be defined?
4. What are strategies to build concept knowledge?
5. How can a reader learn to understand and retain word meanings?
6. How can I integrate vocabulary instruction with other Language Arts activities?
7. How can students be taught to use context to learn vocabulary?

Reflections — Answers to questions that you may have about how to integrate vocabulary instruction into your classroom.

C. Annotated Bibliography

UNIT OVERVIEW

In this unit of the Strategic Reading Project, we introduce you and your school to methods of implementing effective vocabulary strategy instruction into your classroom. This unit answers seven questions about vocabulary learning:

1. What is effective vocabulary instruction?
2. How should vocabulary words be selected?
3. How should vocabulary words be defined?
4. What are strategies to build concept knowledge?
5. How can a reader learn to understand and retain word meanings?
6. How can I integrate vocabulary instruction with other Language Arts activities?
7. How can students be taught to use context to learn vocabulary?

As in the other units, this unit includes a Focus section that introduces the concept of the importance of vocabulary knowledge in an everyday learning situation and a Reflections section that includes questions about how to implement effective vocabulary learning strategies in your classroom and school.

The staff development activities below are suggestions for how you and your colleagues might use the SRP materials.

Suggestions for Staff Development Activities

Building A Knowledge Base

- Read the Unit Essay, consult the Annotated Bibliography and select one or two articles to read. Discuss the readings with other teachers.

Before you read...

- Discuss the vocabulary learning activities that your students have found useful.
- Reflect on how you developed and refined your vocabulary knowledge.
- Discuss what makes some words easier to remember than others.
- Write the elements that are necessary for effective vocabulary instruction.

After you read...

- Summarize the ideas in the unit. Compare your understanding of what constitutes effective instruction with your previous beliefs.
- Evaluate common vocabulary activities used in you r school according to the suggested guidelines.
- Discuss some effective vocabulary strategies that you intend to use in your classroom.

Observation Models and Examples

- Listen to SRP Audiotapes for the Unit. Share ideas with colleagues. Observe classroom demonstrations by teachers using a vocabulary strategy. Discuss an write down examples of the following:
  - Introducing the vocabulary strategy
  - Guiding students to elaborate on the meaning of words
  - Association of word meanings with background knowledge
  - Active participation by students in defining words
  - Promoting independent learning of vocabulary acquisiton
- Complete the matrix designed to help you compare the different examples of vocabulary instruction that you have observed (Figure 11).

Reflecting on Your Practice

- Brainstorm alternatives to the vocabulary strategies that you have read about that you think would work in your school.
- Analyze a vocabulary lesson that you or a colleague have used and evaluate its effectiveness according to the criteria for effective instruction.
  - Does a sufficient amount of vocabulary strategy instructions occur in your school or are definitions simply memorized?
  - Do the goals for vocabulary learning include content and process objectives?
  - Is vocabulary instruction relevant to the classroom reading materials or are words taken from a generic list?
  - How are specific words selected for teaching?
  - Does the teacher control instruction or is there a gradual release of release of responsibility to the students to support independent learning?
  - Is there an effort to relate instruction and use strategies across content areas?

- Is there an effort to integrate vocabulary instruction with comprehension and writing activties?
- Is there an effort to match learning strategies with instructional goals, students' needs and abilities, and the difficulty of the material?

Changing Your Practice

- Observe another teacher using a vocabulary strategy or invivte a teacher to model a strategy in your classroom.
- Use a matrix to evaluate new vocabulary strategies according to the criteria for effective instruction.
- Compile a file of vocabulary strategies that can be used to build concept knowledge, retain word meanings, and integrate vocabulary instruction with Language Arts strategies.
- Rewrite or modify a textbook vocabulary lesson to align it with the principles of effective instruction.
- Create lessons incorporating vocabulary instruction in a variety of content areas.

Gaining Expertise

- Model the teaching of a vocabulary strategy in another teacher's classroom.
- Coach a colleague who is learning to teach new vocabulary strategies.
- Collaborate with a colleague to develop lessons integrating vocabulary strategies in his or her classroom or in a specialized content area.
- Demonstrate a vocabulary strategy in a staff development meeting.
- Design a demonstration lesson that teachers can use or adapt in their classrooms.
- Create a resource book of vocabulary strategies composed of student work.

ESSAY

Jabberwocky
by Lewis Carroll

Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

If someone asked you to explain this verse, you would be unable to do so because the words are meaningless. Vocabulary words are labels for concepts; because Carroll's vocabulary is unknown to the reader, his words cannot be associated with any specific concepts.

Readers may, accordingly, have either of two problems when they interpret the poem. First, they may understand neither the vocabulary nor the concepts sought to be communicated by the author's chosen words. A reader lacking an advanced background in science and math would have difficulty understanding a treatise on thermonuclear dynamics. Second, readers may not understand the author's specific words even though they represent familiar concepts. For example, if we make the following substitutions: stormy for brillig, howling for slithy, and beast for toves, the text immediately becomes clear. Using the original text, try to answer the following questions about the verse.

What were the slithy toves doing?
How did the borogoves feel?

You were successful. Why? Because you relied on the sentence structure of the English language to guide you to lift out the appropriate words to construct a response even without understanding them.

Frequently, students are faced with a similar situation. They are asked to read texts that may seem like complete gibberish to them or, at least, are difficult to understand because they contain unfamiliar or unclear words, concepts, or both. Students of all ages encounter unknown words in both narrative (stories) and expository (informational) texts but the problem of unknown vocabulary and its effects on comprehension intensifies as they encounter content information containing abstract ideas and concepts that are beyond their realm of knowledge.

In many classrooms, however, a common form of reading instruction is briefly to introduce unfamiliar vocabulary words before reading a text and then, after reading, expect students to understand and answer questions about the information read. This traditional approach disregards the consideration that, just as we did with the nonsense verse, students often answer questions by searching the text for key words and using syntax as a clue to lift out a correct response without fully understanding the concepts represented by the vocabulary word. How can we as teachers rectify the situation and help students learn vocabulary, understand the underlying concepts, and thereby enhance reading comprehension? Recent research on vocabulary acquisition provides guidelines for effective instruction and learning strategies designed to support vocabulary learning.

Importance of Vocabulary Instruction

Vocabulary words are descriptors or labels for concepts. To understand a word means to understand an idea and therefore, vocabulary knowledge is related to, although not sufficient for reading comprehension.

Understanding involves knowing some or all of the network of associations and attributes connected with the idea. For example to know the word stunning means that we recognize that it has a very strong, positive connotation, usually used to describe the exquisite appearance of something or someone (woman, jewelry, clothing), but it can also mean overwhelming or well executed, as in a stunning victory.

The context of the text and the strength of the associations we can recall about a word's meaning colors our interpretation and understanding of text. In the following context, for example, we use stunning to describe appearance and conjure up an image of a woman that would be very different if we substituted the word bedraggled for stunning.

> All eyes followed the stunning woman as she walked across the room.

Vocabulary knowledge can be incidental or critical to understanding a text. Comprehension depends on both the number of words known and the extent of that knowledge. Levels of word knowledge are identified on a continuum extending from unknown (no knowledge), acquainted (partial knowledge) to established (full knowledge) (Beck, Mc Keown, McCaslin & Burkes,1979). If a student encounters a large number of unknown words that are critical to understanding essential concepts, comprehension is compromised. Students do not need to know all the words they encounter at the established level, but if the instructional goal is to learn specific words to improve text comprehension at least partial knowledge of the word is usually necessary (Irvin,1990). Knowledge of words at the established level is expected if students are to access and use the words in writing and speaking. This unit provides strategies to help students reach an established level of word knowledge.

Learning vocabulary meanings involves relating words to ideas (Beck & McKeown, 1983). Learning occurs through a combination of two methods: wide reading and direct vocabulary instruction. Either method alone is insufficient to develop a broad vocabulary base (Nagy, 1988). Wide reading is important to vocabulary development because students learn word meanings incrementally through frequent exposure to words. Meanings are refined and extended when words are encountered in a variety of settings.

Wide reading is not, however, generally sufficient on its own to acquire knowledge because when inferring definitions is required, many contexts fail to provide sufficient information to infer the meaning of an unknown word. (Schatz & Baldwin,1986). An initial encounter with a word often gives the reader only a glimmer of meaning. Students, therefore, must read extensively and encounter rich contexts to develop vocabulary in this way. Unfortunately, many students do not read widely, particularly in content area materials where many vocabulary recognition problems occur.

Direct instruction of all word meanings is not possible because of the sheer number of words that students are required to learn. Direct instruction is nonetheless critical to vocabulary growth for three reasons: first, students can be taught strategies for learning vocabulary words; second, they can learn the meaning of selected words that are crucial to understanding specific content; and, third, instruction is imperative for students who do not read widely and fail to acquire vocabulary through extensive exposure to text.

Selection of Vocabulary Words

Frequently teachers rely on textbooks to provide vocabulary words that should be taught during a lesson. These words are preselected by the author and publishers and are highlighted in some way to emphasize their importance. Definitions may be provided in the text, words may be listed for review prior to reading, or activities may be suggested that require either dictionary use or defining the words in sentences. These long-established practices of selecting and defining words are not effective means of instruction because students often fail to retain the definitions for an adequate period of time after instruction has ceased (Irvin,1990).

Words selected in a textbook may not be suitable for a particular class. Students' background knowledge and classroom goals for learning vary. The teacher must decide on the important concepts to teach, then reflect on the students' abilities and needs, and finally select vocabulary that is critical to their understanding of the concepts to be taught. Guidelines for word selection are also important for teachers who do not use textbooks as a primary source of instruction. Although teachers may select words that are interesting or supportive of the concepts to be learned, the following rules should guide the selection of vocabulary words.

First, words should be taught that are critical to understanding the text. When there are a number of unknown words, the teacher can eliminate words that are not crucial to understanding the passage. In the following passage the word nonchalant, which will be unfamiliar to the students, is critical to their understanding of the discussion about the ready acceptance in British culture of the existence of ghosts. In contrast, though the word environs may just as likely be unknown to the students, their ignorance or knowledge of that word does not affect the understanding of the passage.

> Ask any Englishman about ghosts and you will receive a nonchalant response because the English are very comfortable with ghosts.
>
> Those people who don't have a ghost of will add, "But it's a friendly ghost you know. None of us have any anxiety about them. " You almost get the feeling that an Englishman would miss his ghost if well, the ghost died.
>
> A few of the wraiths are more than merely local celebrities, and most of these can be found in the environs of London, but most particularly in the Tower of London, where the large ghost list includes such notables as Henry VI, Anne Boleyn, Thomas a Becket and Sir Walter Raleigh.

Second, words should be unknown. In the previous text the word anxiety may be targeted to be taught. In many instances this word would already be known to the students and reteaching it would be unnecessary. Teachers can determine students' knowledge of words by asking them to brainstorm and generate words that are related to the topic to be learned. Students' familiarity with related concepts indicates their extent of their knowledge about the topic. Teachers can also ask students to explain preselected vocabulary words; such explanation is an indice of their understanding of the topic. Langer's (1981) prereading activity PREP is based on students' prior vocabulary knowledge and is used to determine the amount and kind of prereading activities that are necessary to support comprehension.

Third, words should be taught that will be used again. The words selected for teaching, it should be anticipated, will be likely to be encountered with a degree of frequency in the students' daily activities. Thus, in the previous text, the word wraith should be eliminated because it is archaic and uncommon in everyday reading, writing, and speaking.

Criteria for Effective Vocabulary Instruction

Limitations of Definitions

The common classroom activities of looking for a word in a dictionary or memorizing definitions do not in themselves lead to understanding of the word or a text in which it might be found. Moreover, dictionary definitions often do not contain enough clearly stated information to enable the student to glean an accurate or complete understanding of the word. This is particularly true where, as is often the case in our language, the same word may have many meanings that are often unrelated. In those quite common instances, students may select an incorrect or partial definition of a word and gain an incomplete understanding of the word. For example, a student defined miser as a person who saves money. The defining sentence was "People with savings accounts are misers." This generalization is incorrect because of a partial understanding of the word.

Students' understanding of a word depends on their developmental level and their experiences with language. Young students' definitions will be less precise and complete than older and more experienced students. A young student may omit attributes or examples of the word. Thus, the younger or less experienced student will, accurately, but incompletely define a ballerina as a lady who dances. More experienced students will construct the clearer, more precise definitions that a ballerina is a dancer trained in classical ballet such as Maria Tallchief.

Elements of a good definition are constant. To attain a complete definition, students must categorize words, elaborate on attributes of the word, and provide examples of the word. The types of classroom activities we use either help or hinder students in their developing ability to construct viable definitions which increase their understanding of words.

Sentences written to practice using the word are usually ineffective in increasing comprehension because students tend to develop generic or vague sentences that do not necessarily reflect the meaning of the word. For example, the word teraph means idol. A student might write: The teraph received a place of honor. A variety of words could be used to replace the word teraph.

Even if sentences are constructed that accurately represent a word's meaning, the exercise is only done once and then, in all likelihood, promptly forgotten. Because not all instructional procedures are equally effective, the following guidelines have been compiled to help teachers to identify and implement activities that lead to expanded word knowledge, improved reading comprehension and strategies for independent vocabulary learning. The guidelines are not discrete processes; they are, rather, an attempt to describe interrelated factors that should be considered when selecting vocabulary activities that are likely to be effective and practical for classroom use.

Elaborated Word Knowledge

Research suggests four criteria for effective vocabulary instruction (Carr & Wixson,1986). First, vocabulary instruction should help develop elaborated word knowledge. Students should develop a breadth of word knowledge that goes beyond memorizing a definition or learning a word in a single context.

Elaboration on meaning occurs in many ways. Among the instructional methods designed to produce elaborated knowledge are introducing new vocabulary and related concepts together, examining relationships among new words, and studying words in multiple contexts. Elaborating on word meanings will help students refine their understanding and recall of definitions.

Introducing words that are semantically related helps students form natural associations among words, resulting in a broader understanding of each word's meaning and a clearer awareness of ideas that may be related to understanding text information. Thus, when teaching a unit on exploring, the teacher can introduce and discuss words that are associated with the concept.

Such words might include synonyms such as delve, inquire, investigate, probe, and scout. Antonyms associated with the concept may include isolate, insulate, seclude, and sequester. Broader categories of related words can be developed and associated with the topic (such as Exploring the environment or Exploring our ancestry). The association of words within and between categories of information helps students form a link among concepts, simultaneously improving understanding and retention of information.

Studying relationships among words helps students begin to establish a clearer conception of a word's meaning. Beck & McKeown (1983) suggest activities that require students to work with relationships among words. Students can compare the features of two words to determine if they are mutually exclusive (e.g. delve/isolate). The teacher can ask questions, such as: Would a reticent person reconnoiter unchartered territory; Does an explorer seclude him or herself at home. As students respond, they are forced to examine the characteristics associated with each word and clarify their understanding of the words.

Students also broaden their understanding of words by defining examples and non-examples of the word. Either the teacher or students propose situations and discuss whether the situation typifies the word's meaning. Situations based on the students' prior experiences can be proposed for discussion, such as: Would they hire Columbo or Batman to delve into a security fraud? Explain why or why not a hermit is a good example of a person who insulates himself from others.

Multiple exposures to words also help students elaborate on word meaning. Exposure to words can be in any of the Language Arts forms: listening, speaking, reading, and writing. The more vocabulary words are used by students or become part of their receptive vocabulary, the deeper their knowledge of the word. Regular and repetitive use of new vocabulary words should be encouraged through daily writing of stories, summaries, journals, logs, and reports. During reading and listening to conversations, students should be encouraged to note when vocabulary words are encountered.

Association with Background Knowledge

A second criterion for effective vocabulary instruction is that such instruction should help students relate new vocabulary to their background knowledge. If the vocabulary instruction helps students relate new vocabulary to their personal experiences, the new vocabulary then becomes personally meaningful to the students. This, in turn, leads to increased retention of words and improved comprehension.

Many kinds of activities can be used to link new vocabulary with previous knowledge. Each student might be told to respond to a statement on the basis of a personal experience that clarifies the meaning for him or her (Gipe,1980). They can be asked, for example, to describe a situation in which a person might be sequestered. Another technique would be to use a personal clue (Carr,1986) to relate a word's meaning to an individual's background knowledge. The word isolate could be related to a personal experience (the word isolate may be related to having chickenpox, which kept the student separated from friends). Such associations enhance understanding and recall of new words.

Active Student Involvement

A third component of effective vocabulary Instruction is to provide for and promote active student involvement in learning new vocabulary. Active participation in defining words allows students to process information deeply (Craik & Lockhart, 1972). Depth of processing information fosters retention because students work with a word until they understand it fully and it becomes a part of their vocabulary.

The distinguishing feature of an active approach to vocabulary learning is the extent of student initiation and participation in defining the word. It is a student-oriented, rather than teacher-oriented approach to learning. Activities described above under the first two criteria represent active approaches to learning. Activities that involve student discussion, such as answering questions to clarify the meaning of words, providing examples and non-examples of the definition, and associating the meaning of a word with a student's personal experience, characterize active approaches to learning vocabulary. Active approaches to learning help students acquire new vocabulary independently.

Independent Learning

The fourth criterion of effective vocabulary Instruction is the development of the students' ability to acquire vocabulary independently. Independent vocabulary learning requires students to develop the ability to learn through individual efforts without extensive teacher involvement.

Students need to understand how to learn word meanings independently because of the enormous number of words that they will encounter and need to understand and add to their active vocabulary throughout their lifetimes. Developing vocabulary knowledge requires students to learn methods of inferring word meanings from a variety of contexts and to apply ways to remember them.

Students must become strategic readers who are cognizant of a myriad of learning strategies, capable of selecting a strategy or strategies appropriate for a particular context, able to monitor their individual learning, and endowed with the capacity to modify and change strategies if understanding is impeded (Paris, Lipson & Wixson, 1983). Strategies that shift responsibility for learning from teacher to student encourage independent learning. Strategies that encourage active student involvement through elaboration of word meanings and association of words with previous knowledge foster independent learning.

Applying the criteria

To evaluate strategies for vocabulary instruction teachers should determine whether each strategy incorporates the four criteria for effective vocabulary instruction. A matrix (Figure 11) can help teachers evaluate the degree to which various strategies incorporate the criteria. Teachers can then select strategies that are appropriate for the learning goals of individual classrooms.

Included in the matrix are traditional classroom activities like matching columns that do not meet the criteria and an analysis of strategies presented in this discussion of vocabulary teaching. Selected strategies are frequently applicable to both narrative and expository text. When a strategy is appropriate for a particular genre, that will be noted. Sometimes the selected strategies focus solely on vocabulary learning, but frequently the activities are useful in increasing reading comprehension, writing ability, or both.

We first present before reading strategies. These help build understanding of broad concepts as students learn individual word meanings along with a strategy to refine meanings within a broad concept. Next, strategies for retention of words through reinforcement techniques are presented, followed by strategies that encourage integration of Language Arts. Our discussion concludes with presentation of a method to help students learn from context.

Understanding a Definition

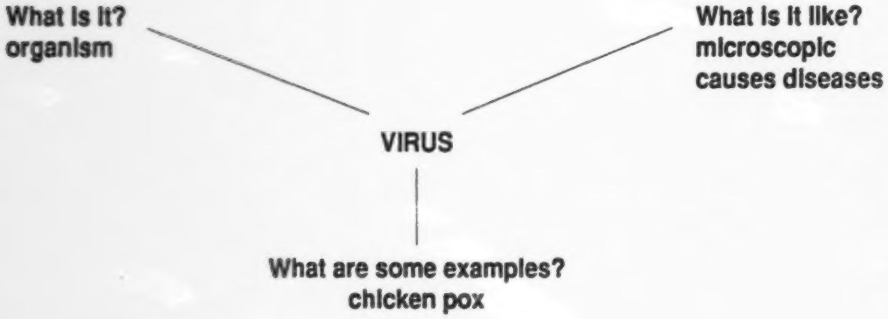
The first step in learning vocabulary is to understand the concept of a definition. Frequently students are unable to clearly define a word because dictionary definitions are confusing or they select either an incorrect definition or a partial definition. For example, Concept of a Definition

(Schwartz & Raphael, 1985) helps students understand what a definition is and develop a broad understanding of words by training them to use three questions to determine if they have a complete definition. Students read a selection and discuss the meaning of the word to answer the three questions: What is it (Categorization), What is it Like (Characteristics of the word), and What are some examples (Examples).

If students can answer only one or two of the questions, their definition is incomplete (Figure 1). In the following example, if a student cannot answer the question, What are the characteristics of a virus, their definition is incomplete. A virus is a microscopic organism like the chicken pox. Or without the categorization question, What is it like, the definition is also incomplete. A virus causes diseases like the chicken pox. A complete response would include answers to all the questions, such as: a virus is a microscopic organism that causes diseases like the chicken pox.

Figure 1

Concept of a Definition



Strategies To Build Understanding

Semantic Map

Strategies to build understanding can be used before reading to teach vocabulary and construct a foundation of knowledge about a topic that is unfamiliar to students. Such strategies are usually used with content information although they also work well with unfamiliar topics in narrative text.

Due to the students' limited prior understanding, the teacher plays the central role in accessing and developing the necessary prereading knowledge. Many of the knowledge building strategies are visual organizers, such as a graphic outline, that is used to associate important concepts in order to indicate relationships among them. There are several kinds of organizers and the differences among them pertain to the method of developing and organizing information (teacher vs. student control), type of organizational framework (simple categorization of related information vs. depicting a particular relationship among concepts), and the time of construction and presentation of the information (before, during or after reading).

A graphic organizer that is used to build knowledge with both narrative and expository text is a Semantic Map (Johnson & Pearson,1978). Semantic Maps are formed during collaborative interactions between the teacher and students before reading. To construct a semantic map, which is a web diagram, the teacher has the students recall their knowledge about the topic and develop associations between that knowledge and concepts crucial to understanding the text. Procedure:

Before reading:

1. The teacher determines the key concepts in a selection.
2. The teacher selects words pertaining to the concepts that will be difficult for the student and necessary to comprehend text.
3. Students brainstorm to generate information that they know about key concepts and words.
4. Class discusses the relationships among each concept and the information contributed by the students.
5. Categorize the information that has been elicited as a class.
6. Draw a diagram using connecting lines to depict relationships among key concepts and ideas.

During reading:

7. Relate new information obtained from reading to the topic by extending the map to include relevant information and additional categories of information.

After reading:

8. Use the map for review and as an outline for a writing activity before or after reading. The main points on the map are used as topic sentences in paragraphs and details become supporting statements. Vocabulary is extended through the addition of a writing activity.

The following portions of a transcript of a lesson shows how a semantic map about gymnastics was developed in a classroom with second grade students in an inner city school. Note how the teacher provides scafolded support to the students by asking probing questions that help them draw on their background knowledge. The teacher then extends and elaborates on the students' knowledge and helps them relate what they know to the vocabulary and information in the story. Throughout the discussion, the teacher guides the students to form complete definitions by identifying categories, attributes and examples of the words. At the conclusion of the lesson the teacher asks the students to explain why specific vocabulary words are grouped together and to construct individual maps similar to the class map in their journals.

Note: Introduces the topic

Example

Teacher:

Our theme this week is physical fitness. What does physical fitness mean for second graders?

Student:

Being in shape.

Teacher:

Right. If you walk to the second floor after lunch and you're out of breath-you're out of shape.

Teacher:

What are two things that can keep you in shape?

Student:

Exercise.

Teacher:

Yes. Exercise and -turn off the T.V. If you want to be physically fit you must turn the T.V. off and play outside.

(From this point the teacher lists the students responses on the board).

Example

Teacher:

What are your favorite exercises?

Student:

Toe touches.

Student:

Scooting.

Student:

Skipping.

Student:

Jumping.

Teacher:

This week we are reading a story about Gymnastics. Is gymnastics a kind of exercise?

Student:

Yes

Note: The teacher elicits background knowledge from the students.

Example

Teacher:

Look closely at the word and think about all the words that you might read in a story about gymnastics.

Student:

Trampoline.

Teacher:

What is a trampoline?

Student:

You bounce on it.

Teacher:

What does it look like?

Student:

Sort of like a big mattress.

Teacher:

Is it thick like a mattress?

Student:

No, but it's very bouncy.

Teacher:

Is it part of gymnastics?

Student:

Yes.

Teacher:

What is another word that you can think of?

Student:

Cartwheels.

Teacher:

Can you explain what a cartwheel is?

Student:

I can do one.

Teacher:

Can you do one without hurting yourself?(Child does a cartwheel).

Teacher:

That was excellent.

Note: The teacher guides students to think about additional knowledge that is relevant to the story.

Example

Teacher:

It's O.K. to give me words for things that are part of gymnastics but I also want words that tell us other things about gymnastics. Where do you see gymnastics?

Student:

The circus.

Teacher:

Good. Circus is one of the words in our story.

Student:

Carnival.

Teacher:

Yes. Have you ever seen gymnastics on T.V.? What big event do you see where they do a lot of gymnastics?

Student:

Exercise programs.

Teacher:

Yes, but I'm thinking of a big event that happens every four years in the summer and the winter. It starts with an O.

Student:

Olympics.

Teacher:

What is the Olympics?

Student:

It's different sports.

Note: A student suggests a new label for a familiar concept for another student.

Example

Teacher:

Why do they do these sports?

Student:

Sometimes, they give you bronze, gold and silver.

Teacher:

What are they called?

Student:

Necklace things.

Student:

Medals.

Note: The teacher associates a word with a common experience the class just shared.

Example

Teacher:

What is some of the equipment that you would use in gymnastics? I worried when we didn't have them on the ground when Michael did the cartwheel. What am I thinking of?

Student:

Mats.

Teacher:

Thank you. The mats in our story are called soft mats. Why are they used?

Student:

So you don't get hurt.

Note: The teacher now guides the class in defining the word balance beam according to the concept of a definition questions : What is it? What is it like? What are some examples?

Example

Student:

I know another piece of equipment. Balance beams.

Teacher:

Describe them.

Student:

You do tricks and exercises on them.

Teacher:

What are they like?

Student:

They're a long piece of wood.

Teacher:

Where have you seen some?

Student:

In our gym class.

Note: The teacher helps the students categorize the words that have been sorted into related groups.

Example

Teacher:

Tell me why I put all these words together on one side of gymnastics. (circles cartwheels, jumping jacks, handstands and frogstands). The teacher points to the words that have been listed on the board.

Student:

They are things you do.

Teacher:

Tell me more.

Student:

They are exercises.

Student:

Sports.

Teacher:

Good. Lets write the words Sport/Exercises to describe these words.

Teacher:

Why did I put these words together?(circles trampoline, soft mats balance beam,bars)

Student:

It's stuff. Things they use.

Student:

Equipment-things they need for gymnastics.

Teacher:

Let's write the category equipment here.

Teacher:

Why did I group these words together?

Student:

They are places you find gymnastics.

Teacher:

I'll write places here. We have no category for the word medal so let's leave it on the side but we'll star it and the other words in the story because they are important to understand the story.(asterisks are placed next to some of the words).

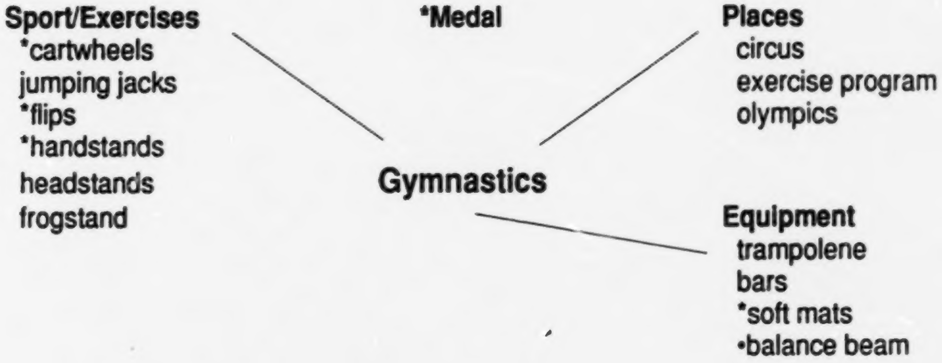
Note: The teacher instructs the students to make their own Semantic Maps.

Example

Teacher:

Please get out your journals. I want you to make your own maps. Put the word gymnastics in the middle and place the words in groups around it. You must be able to tell me why these words are grouped together. (Students may write a brief summary using the maps as an organizational framework.)

FIGURE 2 **Semantic Map**



The Semantic Map activates students' background knowledge through discussion of their ideas about a topic. The teacher extends background knowledge by developing new vocabulary labels for story concepts by associating them with experiences that are familiar to them. Through categorization of the words, students examine the relationships among ideas and develop elaborated word meanings. Although the students are actively involved in discussion and categorization of information, the teacher directs the procedure. Accordingly, this strategy does not promote independent acquisition of vocabulary, although it meets three of the suggested criteria for effective instruction.

Structured Overview

A Structured Overview (Vacca & Vacca,1989) is effective for developing background Knowledge with expository text. The Structured Overview differs from a Semantic Map because it is developed independently by the teacher to provide a framework for a lesson. Unlike a map, which only groups related concepts, a Structured Overview presents a hierarchical outline of information with the most inclusive concepts subsuming subordinate ones. Relationships among concepts are depicted by connecting lines. Viewing the relationships indicates to students how to integrate and organize information themselves. The organizational structure helps students to increase their comprehension and retention of vocabulary and text information. Procedure:

Before reading:

1. Analyze the content and select the vocabulary that is critical to understanding text.
2. Arrange the words in hierarchial order in skeletal format to depict the relationships among concepts. The most inclusive concepts include subordinate ones.
3. Use the Overview to introduce the content to the students. Explain the arrangement of words and encourage discussion about concepts.

During reading:

4. As learning occurs, relate the new information to the overview. The Overview acts as a guide that is referred to throughout discussion of the material.

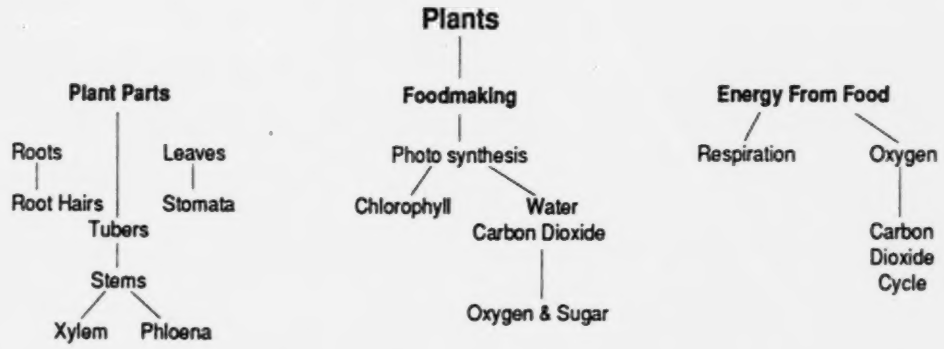
After reading:

5. Use the Overview for study and review.

The Structured Overview activates and builds students' background knowledge during discussion about the topic. Introducing related vocabulary and concepts and examining the relationships among words helps students to develop an elaborated knowledge of new vocabulary. The activity is primarily teacher centered and thus will not develop strategies for independent development of vocabulary.

The following is a Structured Overview for science class developed by a fourth grade teacher for students in a working class community.

FIGURE 3 **Structured Overview**



Semantic Feature Analysis

Semantic Feature Analysis (Johnson & Pearson,1990) can be viewed as building concept knowledge differently from a Semantic Map and a Structured Overview. Once a knowledge base has been established, this activity helps students examine relationships among associated concepts and refine their interpretations of word meanings. Students learn to discriminate among words and related concepts and are exposed to the different connotations of words. When completed before reading, the strategy activates and extends students' prior knowledge about a topic. When used after reading, this strategy helps students refine and consolidate their newly acquired knowledge. Procedure:

Before or After Reading:

1. The teacher selects a category consisting of two or more similar concepts. These are listed along with additional related concepts on the left side of the matrix. In Figure 4 the concepts hut and cottage were important to understanding a story. Additional related words (shed, shanty,cabin house &mansion) were added for comparison.

2. Features used to describe the words are placed horizontally along the top of the page (permanent dwelling,temporary shelter,storage/shelter, upscale).

With teacher guidance the students complete the matrix using symbols to indicate whether the features are included in the words. Although this strategy builds background knowledge and refines students' understanding of words, it is a teacher directed activity and provides no training for independent acquisition of vocabulary.

FIGURE 4 Semantic Feature Analysis

	Permanent Dwelling	Temporary Structure	Storage/ Shelter	High Scale
hut	0	+	+	0
shed	0	+	•	0
shanty	0	+	+	0
cabin	?	0	0	?
cottage	?	0	0	?
house	+	0	0	+
mansion	+	0	0	+

Understanding and Retention of Vocabulary

Strategies to help students understand and retain vocabulary can be used in situations when students have some knowledge about concepts which the words represent and need to refine and clarify their understanding of the words. These strategies may also be used to reinforce learning words that have been introduced during activities to build background knowledge. For example, words appearing on the Structured Overview may be studied using the Personal Clue method to reinforce retention.

Personal Clue cards are an effective method to help students understand and remember unfamiliar words in narrative and expository text. The following example shows the contrast between traditional methods of looking up words in the dictionary and writing sentences or memorizing the definitions, on the one hand, and the association of word meanings with personal clues, on the other.

The definition for mitochondria (part of the seventh grade science curriculum) is: small granular bodies found in the cytoplasm of a cell, believed to function in certain phases of oxidative metabolism. Students who are required to write and memorize the definition are quite likely to do so without any understanding, in which case, the definition will be forgotten shortly after the unit of study has been completed.

Using the Personal Clue strategy, which has been effective in promoting long term retention of words, seventh grade students, after class discussion, simplified the definition of mitochondria to "building blocks of the cell." In order to remember the meaning, one student developed the clue Hans and Frans-the "pump it up" gentlemen from Saturday Night Live. It was such a meaningful association, that the entire class appropriated the clue and when students recalled the clue and Hans and Frans saying, "We're going to -pump-you up," they remembered the meaning of mitochondria and were able to explain it in their own words. Procedure:

Before reading :

1. The class discusses the meanings of words and elaborate on the definitions by discussing the attributes and examples of the words.

Durring reading:

2. Students read the text and reflect on the meaning of the words to ensure comprehension.

After reading:

3. Students reflect on the definitions and complete the Personal Clue cards by writing the vocabulary word on line 1 and the definition on line 3. Students then associate the word with an individual personal clue-a word or phrase that represents an experience for each student to retrieve the definition. Words and /or pictures may be used to represent the experience. Pictures are often helpful for young students. Second language learners may write the clues in their native language. Students write the clue under the vocabulary word on line 2.

(1) mitochondria

(2) Hans & Frans-pump It up

(3) building blocks of the cell

Students study the words by covering the clue and definition. If the definition is not recalled, uncover the personal clue. If the clue does not jog the student's memory then uncover the meaning and restudy the word.

The following is a transcript from a portion of a lesson using personal clues in an inner city fifth grade classroom. Note how the teacher explains the value of using personal clues as the class reviews how to do the activity. The teacher then elaborates on the definition by giving examples of how the definition is related to her life and then helps the students actively define the words by using their own examples. Students in this class wrote the words in columns on one sheet of paper. Individual word cards can also be used to store the words for review.

Note:The teacher reviews the importance of the strategy.

Example

Teacher:

Today were going to review how to use the Personal Clue strategy. Who can tell me what we write on the first line?

Student:

The vocabulary word.

Teacher:

Then we go to the third line and write the definition of the word. What is important to remember when you write a definition?

Student:

You have to use your own words.

Teacher:

Right. You have to know what the word means in your own words so that you really understand it. What goes in the box under the vocabulary word?

Student:

The personal clue.

Teacher:

What do we mean by a Personal Clue?

Student:

What reminds you of that word.

Student:

Something from your life that reminds you of the meaning.

Teacher:

Yes, and we talked about how important the clue is for studying. If you look at the word and you have written a clue that is meaningful to you-you'll know the word immediately. If you can't remember the word you may want to change your clue to one that is more meaningful to you to help you remember the definition. The Personal clues will help you learn new words. You can write these words on your paper.

Note: The teacher helps students elaborate on their initial conception of the word's meaning.

Example

Teacher:

Our first word from the story is tension. Does anyone know what that means?

Student:

Scared.

Student:

Tension does have scared in it but it has more feelings than that.

Student:

Anxiety.

Teacher:

Anxiety is a great synonym.

Student:

Worry

Student:

Stressed out.

Teacher:

Yes. How does your body feel when you're tense.

Student:

Weak?

Teacher:

Well, some people do feel weak. I feel tight first. Like my shoulders are glued to my ears. Then after the anxiety or tension is over, I feel weak. Not at all relaxed. So for the definition you could write down anxiety but you could also write stressed out. If you use scared you can put another word neat to it like nervous or stressed out.

Note: The teacher models how she thinks when selecting a personal clue.

Example

Teacher:

Next, think about a clue. For me it's easy because yesterday my sister was having a baby and things were not going well. She had to have emergency surgery. Fortunately, my sister and the baby are fine but last night I was very tense. My clue will be Julie/baby. Now my clue wouldn't mean anything to you. You have to think of something in your life that reminds you of a time when you experienced tension.

Student:

My grade card.

Teacher:

Yeah! That could make someone tense.

Student:

Cedar Point. The Demon Drop.

Student:

If someone threatened to kill you or beat you up.

Teacher:

Each of you write down something that means tension to you so that when you look at the clue you'll know the meaning and say to yourself- I've felt that.

Teacher's example	**Student example**
tension	tension
Julie/baby	Demon Drop
anxiety	stressed out

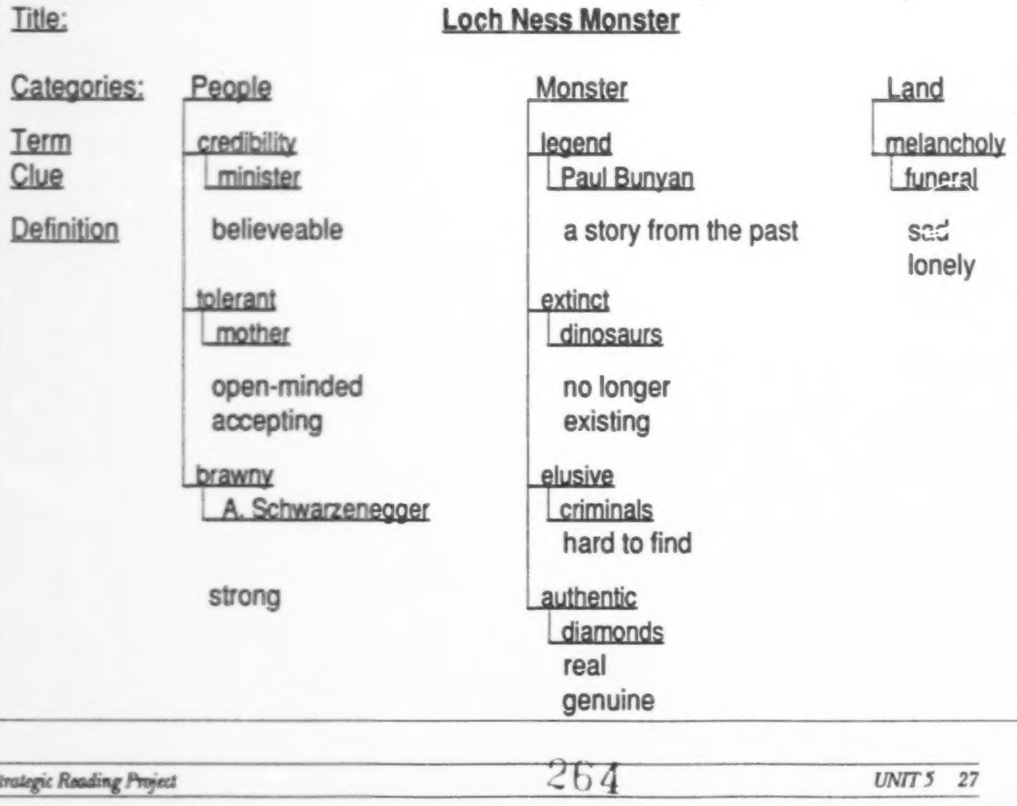
Personal clue cards meet the criteria for effective vocabulary instruction. Through discussion of the words' meaning and association of the words with background knowledge with Personal Clues, the students are actively involved in defining the words and extending their knowledge of word meanings. Students become independent learners in two ways. They learn a strategy to link word meanings with personal knowledge and they become proficient in monitoring their understanding as they study definitions and change clues that are not useful in retrieving word meanings.

When there are a large number of words to learn, students can extend the Personal Clue procedure to a more encompassing version called the Vocabulary Overview Guide (Carr,1985). The VOG incorporates the Personal Clue strategy in a visual organizer to form a network of relationships among a group of words to aid retention. Students follow the same procedures before and after reading as they did with the Personal Clue strategy but, after reading, instead of using individual cards for each word, students form a semantic outline of the words. Students write the title of the text at the top of a sheet of paper.

In Figure 5 it is The Loch Ness Monster. Students then form categories which incorporate each word. They decide on categories by asking themselves what each word described or discussed in the text. For example in Figure 5 the words credibility, tolerant, and brawny pertain to the category People; while the word brawny represents the category Land.

Category titles are written on line 2. Students then complete the remainder of outline by inserting definitions and personal clues. Students study the vocabulary by reading the title and categories to activate background knowledge and recall words associated with each aspect of the text. Students' study the words in each category by uncovering the clue first and the definition as

FIGURE 5



Because the VOG incorporates Personal Clues it meets the criteria for effective instruction in the same way Personal Clue cards do. In addition, the association of the words through categorization makes the network of relationships obvious and stronger for the students and aids in understanding and retention of a large number of words. The Guide can be used in all subjects. However, because it is more intricate than personal clues alone, it would be most effective for middle school children who may encounter a large number of unknown words in texts. Figure 5 provides an example of a Guide in reading for a high school remedial reader.

Personal clues can be used with another visual organizer (CVS) to improve comprehension, vocabulary learning, and writing (Carr, Bigler & Morningstar, 1991). Vocabulary words, in personal clue format, can be associated with the parts of a story (setting, characters, events, ending) they are describing. When students write a summary of the story, using the Story Grammar as an outline, they simply insert the words into the story elements they are describing. As students integrate Language Arts strategies, they increase their vocabulary retention and enrich their writing.

Keyword Method

Students incorporate the criteria for effective instruction in a mnemonic strategy called the Keyword method (Pressley, Levin, and McDaniel, 1987). The strategy is designed to improve students memory of definitions. Once definitions are established, students create an image associating the definition referent and a keyword. The keyword is a link to meaning, so it must be a familiar concrete word that resembles part of the unfamiliar vocabulary word. For example, the word carlin, meaning old woman, can be remembered by picturing an old woman driving a car. The image helps the student recall the information later when the word carlin is heard. Because car sounds similar to carlin, it leads to the recall of the image and the definition of the word. Students can create their own image or use images suggested by the teacher. Thus, a student constructed a visual image to recall the meaning of mitochondria (building blocks of the cell). It was intended to resemble Mighty Mouse holding building blocks with the word cell written on them.

Teacher constructed images are especially helpful for younger students and as learners become familiar with the procedure. The procedure can be used with all parts of speech and in all content areas, although it might be difficult to create images for some words..

Formation of the image leads to elaborated word knowledge for the student. As students learn to create their own images they are actively involved in the learning process and gain Knowledge about how to study words independently. Although students must be familiar with ideas forming the images, the direct link with personal experience is not necessarily as strong as it is with Personal Clues.

The use of Personal Clues and the Keyword Method seem to be successful because of the strong associations between the word and meaning and the use of a hook to retrieve the word—in one case a personal clue, in the other, a visual association.

Integrating Vocabulary Learning With Language Arts Strategies

Vocabulary instruction can easily be integrated into Language Arts Strategies through comprehension and writing activities as they are applied across the curriculum. As they read, write, listen, and speak, students encounter and practice using the vocabulary they are learning in many natural settings that are conducive to learning and refining word knowledge in several ways. First, students learn to use words spontaneously, thereby incorporating the words into their personal vocabulary. Second, students learn to use general vocabulary and technical words accurately in respective subjects. Third, students realize through integrated learning that knowledge is related and not stored in isolated compartments to be used only in a specific school-related situation. Fourth, instruction is improved and often time is saved when integrated learning occurs across the curriculum. Integrated instruction is possible in all content areas using both narrative and expository text.

Probable Passage

Probable Passages (Wood, 1984) was designed to pique students interest in literature, increase vocabulary knowledge and text comprehension, and improve writing ability. Students use selected vocabulary words and their knowledge of a story format to predict a plausible story before a passage is read. Students can either construct a class story or write a synopsis of individual stories to share with classmates. Procedure:

Before reading:

1. The teacher selects key words from the story and discusses the meanings of the unknown words with the class.
2. Students reflect on the possibilities of using the words with various elements of story grammar (setting, characters, problem,events resolution) and then categorize the words according to these elements.
3. Students create a story line incorporating the vocabulary into the story frame.
4. Students may write a synopsis of the story or retell it orally.

During reading:

5. Students read the story and focus on text comprehension.

After reading:

6. Students discuss the story and compare the original text with their probable passage.

The following segment presents portions of a transcript of a second grade class constructing a probable passage based on vocabulary words selected from the story *Alexander and the Wind Up Mouse.* The class is familiar with the procedure. Note that the teacher uses a mix of familiar and unfamiliar vocabulary words for the students to use to predict a story. Most of the words introduced in the story are familiar to the students. Therefore, the teacher helps them refine their definitions; most of the lesson nonetheless focuses on guiding students to reflect on word meaning and make appropriate hypotheses about where the words might logically fit in the probable passage. The teacher begins the lesson by writing the following words on the board.

Ordinary, pantry, magic, wind-up mouse, pebble, friends, jealous, mysteriously

Note: The teacher introduces the story and vocabulary.

Example

Teacher:

We are going to read a story called Alexander and the Wind Up Mouse and the words on the board are from the story. First we'll read the words and then we'll talk about them because we will make up a Probable Passage with them.

Teacher:

Let's look at the first word ordinary. Can someone tell me what ordinary means? If you had ordinary clothes on what would that mean?

Student:

Not colorful.

Student:

Not fancy.

Teacher:

They don't stand out. What might you say about an ordinary person?

Student:

An ordinary person looks like a regular person- not like a movie star.

Teacher:

Good. An ordinary person doesn't stand out.

Note: The teacher reviews the parts of a Story Grammar and then helps students fit the vocabulary words into the format which will guide them in developing a Probable Passage.

Example

Teacher:

I want you to look at the words we just discussed and think about what they mean. Across the top of the transparency I have written parts of a story (Figure 6). The first is setting. Who can tell me what a setting is?

Student:

Where the story takes place.

Teacher:

What about characters?

Student:

People in a story.

Teacher:

Does it have to be people?

Student:

It can be cats or dogs.

Teacher:

Yes animals and even things.

Teacher:

Problem

Student:

Trouble they have.

Teacher:

Events?

Student:

Things that happen in the story.

Teacher:

Ending

Student:

How the problem is fixed.

Teacher:

Let's look at the vocabulary words and fit them in the story format where we think they should go. You decide if they are words that have to do with the setting, characters, problem, events or endings? Let's do setting first. Are there any words that have to do with the setting?

Student:

Mysteriously.

Teacher:

We usually say something is done mysteriously. Would that fit in with the setting- where a story takes place.

Student:

No.

Teacher:

Where could mysteriously go.

Student:

The characters.

Teacher:

Yes, a character could do something mysteriously.

Student:

Events.

Student:

Problem.

Teacher:

Events and a problem could have something happen mysteriously. We can put the word in all three places and then decide where we want to use it when we develop the story.

Teacher:

Let's go back to the setting. Are there any words that could be used to describe the setting?

FIGURE 6

Setting	Characters	Problem	Events	Ending
Pantry Alexander's house Willie's house	Willie Wind up mouse Alexander jealous ordinary	mysteriously jealous	mysteriously magic	mysteriously magic friends

Note: The teacher helps students review the story elements and the associated vocabulary words to develop a story synopsis.

Example

The teacher reads : The story takes place——(Figure 7)

Teacher:

Which characters and setting would you like to put in?

Student:

In a pantry

Student:

In Alexander"s house.

Teacher:

Think of what might happen with Willie. Look at the words about the characters and think of ideas.

Student:

Willie is jealous.

Teacher:

Can you say more? Willie is jealous because——

Student:

Alexander has a toy he wants.

Teacher:

Good. What kind of toy? Can you use some of the vocabulary words?

Student:

It's a wind up mouse.

Teacher:

Could we use ordinary there.

Student:

It isn't an ordinary toy.

Teacher:

Great! What is the problem?

Student:

Willie throws the mouse away.

Teacher:

Is that what you want to say.

Student:

Willie plans to take the mouse and Alexander knows it.

Teacher:

After that what happens?

Student:

Willie hides the mouse.

Teacher:

How many agree with that.

(Hands are raised).

Teacher:

Finish this sentence for me. After that Willie hides—

Student:

The wind up mouse from Alexander.

Teacher:

Any ideas about how the problem is solved?

Student:

The mouse might take off.

Student:

They aren't going to be friends.

Teacher:

What happens right after Willie takes the mouse? Look at the words we have left.

Student:

A magic pebble tells him where the mouse is.

Teacher:

Help me finish it now. How does the story end?

Student:

Alexander gets the mouse back.

Student:

They become friends.

Teacher:

You're all saying when he gets the mouse they become friends again. Great. This is what we have now.

FIGURE 7

***THE STORY TAKES PLACE* in a pantry in Alexander's house. Willie *IS A CHARACTER IN THE STORY WHO* is jealous because Alexander has a toy that he wants. It is not an ordinary toy. It is a wind up mouse. *A PROBLEM OCCURS WHEN* Willie plans to take the mouse and Alexander knows it. *AFTER THAT* Willie hides the mouse from Alexander. *THE PROBLEM IS SOLVED WHEN* Alexander"s magic pebble tell him where the mouse is. *THE STORY ENDS WHEN* Alexander gets the mouse back and they become friends again.**

Students may use the frame in Figure 7 (typed in italics) or fill in the sections of a story grammar (Figure 6) with their own phrases and develop a synopsis of a story from that. While learning to use the vocabulary in their work, students enjoy the procedure.

This strategy meets the criteria for effective instruction. Through discussion and use of the words in a story, students are actively involved in elaborating on definitions. Although not emphasized in this transcript, during the discussion students can be guided to link words with personal experiences. Students are taking steps toward independent learning by practicing including vocabulary words in their writing.

KWL

Integration of vocabulary learning with expository text is important so that students learn the meaning of essential words and use them naturally in interacting with content materials. Vocabulary words that have been introduced in prereading activities such as a visual organizer like a Semantic Map or with retention strategies like Personal Clue cards can be extended to integrate the learned vocabulary into comprehension activities that incorporate writing and/or discussion. The effective KWL (Ogle, 1986) strategy can be the basis for vocabulary learning as well as other Language Arts activities. Procedures:

Before reading:

1. Teachers introduce and discuss the important vocabulary words pertaining to the topic. Students can use the words to help them focus on anticipated categories of information to be covered, think about information that they already know about the topic and develop questions that may be answered in the text. In the following example (Figure 9) the vocabulary words were discussed and they helped the student recall previous personal knowledge about the topic which was listed in the K What I Know column (e.g. bait, prey). The vocabulary words also provided hints for the students to trigger the questions about what they Want to Know (e.g. adapt, environment).

FIGURE 8

lure, bait, prey, adapt, environment, victim, scent, hinge, blend

K	W	L
Spiders use webs People use bait Trap for food Octopus uses legs around prey and chokes/smothers them	How other animals trap? What animals trap? How animals adapt to different areas?	A - Adaptation Some use camouflage Nocturnal only Methods of trapping AF - Anglerfish lure their food with bait (flap of skin Rod shaped like a wire ALL - The ant lion digs a funnel-shaped pit in the sand which gives away if prey is on the edge ant lion hides in bottom of pit S - Shiny web, sticky threads catches insects VFT - Tip of every leaf is like a clamshell with a hinge, scent lures, a fly, and the leaf snaps shut

During reading:

2. Students listed information learned and used vocabulary when appropriate. Students also created new questions to focus their reading.

After reading:

3. The class can use the vocabulary words in discussions about the information or add the Plus portion of KWL (Carr & Ogle, 1987) and create a map and summary which provides another opportunity for the students to use the vocabulary words (Figure 9). To create a map, students categorize the information listed by asking themselves whom or what the information in the L column describes. Students write the topic in the center of the outline. Then, they place the categories of information around the topic and add the information, including appropriate vocabulary words below each category. Students number the categories in the order in which they want to write about the information. Summaries are constructed using the categories of information to develop paragraphs explaining the topic. Vocabulary words can be practiced using additional extension activities.

FIGURE 9

Creatures that Trap

Adaptation 1
Camouflage
nocturnal only
methods of trapping

Anglerfish 2
Use rods - each rod is fine like wire
lure their food with bait
(flap of skin)

3 Ant Lion Larvae
Digs a funnel shaped pit in the sand.
Gives way when prey is on edge.
Hides in bottom of pit.

4 Spider
Shiny Web
Sticky threads
Catches insects

5 Venus Fly Trap
Tip of every leaf is like
clamshell with a hinge.
Scent lures fly.
Leaf snaps shut.

Summary

Some animals *adapt* to their surroundings by the use of camouflage, only hunting nocturnally or using unique methods of trapping. For instance, the Anglerfish *lure* their prey with *bait* which is really a flap of skin. The flap of skin, attached to the head, looks like a wire and when the prey is near, the wire snaps up and the fish has its' food for the day.

Another method of trapping is digging a funnel shaped pit in the sand which caves in when *prey* is on the edge. The Ant Lion Larvae hides in the bottom of the pit and awaits its *prey*.

Spiders, however, have a very different way of catching its' *prey*. The spiders weave a shiny, web made up of sticky threads. When flies or other insects fly too close, they get tangled in the mass of silk.

The Venus Fly Trap is, in my opinion, has the most extraordinary way of catching its' food. Unlike the other examples mntioned, the Venus Fly Trap is a plant and therefore cannot move to catch its' prey as the others can. Each leaf is like a clam shell with delicate yet powerful *hinges*. The fragrance that escapes the open leaf *lures* flies to tha plant when the fly touches the plants sensitive hairs, the leaf snaps shut trapping the helpless fly inside.

These methods are just a few of the many different, yet amazing ways creatures trap their food.

After reading, entries in Response Journals and Learning Logs and information contained in Visual Organizers can be the basis for incorporating vocabulary words into discussion and writing activities. Vocabulary understanding should be developed before reading. When reading is completed, a personal response can be expressed or an outline can be created.

The following is an example of a compare contrast frame that helped students organize information to comprehend text as well as integrate vocabulary words in their discussion and summary writing. (Figure 11). Vocabulary words that had been introduced before reading and encountered in the text are underlined.

FIGURE 10

	Anglerfish	Ant Lion Larva	Spider	Venus Fly Trap
Environment	water	sand	land	land
Prey	fish	ants	insects	insects
Method of Trapping	Wire rod with bait (flap of skin)	Digs a funnel shaped pit	Shiny, Sticky web	Leaf tip like a clam shell with a hinge. Scent lures fly and leaf snaps shut.

Summary

Creatures that live in water and on land use different methods for trapping food. The Anglerfish lives in water and catches food using rods and bait. The Ant Lion Larva lives on land and digs a funnel-shaped pit. The Spider lives on land and makes a web to trap food. The Venus Fly Trap is a plant that has a sweet scent and a hinged leaf to catch food.

Learning Vocabulary from Text: Use of Context

Eliciting meaning from context requires students to infer information. Making inferences requires students to sort out, select and combine relevant background knowledge and text information. The procedure SCANR (Jenkins, Matlock & Slocum,1989) demonstrates the type of thinking that is necessary to construct word meanings. The procedure trains students to develop hypotheses about a word's meaning and then to monitor their guess against the meaning they have derived from the surrounding context, reformulating a new hypothesis when necessary. This strategy helps students determine accurate word meanings from context. Of course, the ease or difficulty in inferring word meanings while reading depends on the richness of the context.

Before reading:

1. Discuss the purpose of SCNAR and model how to use text information to develop word meaning.

During reading:

2. The teacher should select a passage with some vocabulary words familiar to the students and place it on a transparency. The class is shown a copy of the passage on the transparency with the targeted vocabulary omitted and replaced by blanks.

3. Students use the context of the passage, to propose plausible words to complete the text. Students monitor their use of the context by asking themselves if the suggested words make sense in the text. If not, they revise their hypothesis and make new selections.
4. Students discuss their selections and then compare their responses to the original text.
5. Students follow the same procedure to infer meanings of unknown words in a short context rich passage selected by the teacher. Students identify the words in the context used to infer meanings and discuss how they helped them generate meaning for the word. For example, in the following sentence the students inferred the meaning of inflappable from the context; specifically from the words: tense situation, decisions, difficult matters. The combination of words suggested that such a person would very calm in the face of adversity.

   In a tense situation, an inflappable person will readily make difficult decisions.

6. Students practice applying the procedure in a variety of contexts.

Conclusion

There are numerous strategies that have been designed to enhance vocabulary instruction. The guidelines and criteria that have been presented provide options for teachers to use for improving vocabulary instruction, and, as well, reading comprehension and writing ability. The guidelines propose that effective instruction provide opportunities for rich elaboration of word meanings, associations of vocabulary words with background knowledge, active participation by the students in defining meaning and ways to encourage independent learning. Many strategies have been discussed which come close to meeting the criteria. Often the strategies meet all the criteria except the promotion of independent learning. Teachers can develop and modify instruction to meet the needs of students if they are aware of the strengths and weaknesses of the strategies.

Teachers select vocabulary strategies for different purposes. The goals determine whether instruction should aim for partial or complete understanding of word meanings. Sometimes instruction calls for developing knowledge of concepts when previous knowledge is weak. Sometimes students need merely to recall word meanings. Frequently the teacher would like to integrate instruction throughout the curriculum by using all modes of language. At other times students might need to work on developing meanings from context Activities are available for all of these preferences., many which have not been reviewed.

Because vocabulary learning is central to understanding, it is hoped teachers will examine vocabulary instructional strategies according to the guidelines and select the one that best suits the purpose of instruction and individual student needs.

FIGURE 11 **EVALUATION MATRIX**

METHOD	BACKGROUND KNOWLEDGE	ELABORATED WORD KNOWLEDGE	ACTIVE STUDENT INVOLVEMENT	INDEPENDENT LEARNING
Semantic Map				
Structured Overview				
Personal Clues				
VOG				
Probable Passage				
C.V.S.				
KWL				
Frames				
Sentences				
Matching				

Reflections

Effective Vocabulary instruction takes time. How can I fit it into my full schedule?

Effective vocabulary instruction involves two types of learning. First, learning content-specific vocabulary words that are crucial to understanding text. Second, learning processes-strategies that encourage and enable students to become independent vocabulary learners.

Both types of learning are recognized instructional objectives and require attention. Although seemingly costly in time, vocabulary strategies are actually time efficient because they meet several educational goals at once. First, when teaching words in semantically related contexts, rather than in isolation, a knowledge base is constructed or extended. This, in turn, helps to increase reading comprehension. Second, activities that promote vocabulary retention save time because students internalize word meanings and reteaching is avoided. Integrated vocabulary instruction is time efficient because the combination of learning practices simultaneously increases vocabulary, reading comprehension, and writing ability. Once strategies are learned students are familiar with the procedures and they do not require as much time to complete. Instructional time is diminished if teachers collaborate and use many of the same strategies across content and grade level.

Do activities such as crossword puzzles have a place in the classroom?

There are numerous extension activities that are can be used to reinforce vocabulary learning. The activities are termed "reinforcement" because they do not meet enough of the criteria for effective instruction to be considered teaching methods when used by themselves. Many reinforcement activities merely provide practice in associating words and definitions. These would include common classroom assignments such as writing definitions, completing matching columns and doing crossword puzzles. These activities are pleasurable for most students and can occasionally be used in the classroom. When such materials are used, teachers must, however, realize that they do not help students to elaborate enough on a word meaning or associate words with background knowledge. Moreover, these activities do not cause students to be involved actively in defining and learning words independently.

One commonly used reinforcement activity, word searches, should not be used.They are of no value in vocabulary learning because there is no meaning associated with the words. Students merely search for words amid scrambled letters that may be backwards, upside down or diagonally reversed.

UNIT 5

How can I encourage my students to notice rich vocabulary when they read?

An excellent activity that encourages students to be cognizant of words in multiple contexts is Word Wizard (Beck & McKeown,1983). After learning the meaning of designated words in class, students search for words in a variety of reading materials and conversations. Students note where (text) and how (the sentence) each word was used on a worksheet. Students refine their understanding of the word meaning through discussions in class about the different uses of the words in varied contexts.

ANNOTATED BIBLIOGRAPHY
(in suggested order)

Carr, E., & Wixson, K. (1986). Guidelines for Evaluating Vocabulary Instruction. Journal of Reading, 29 (7), 588-595.

The article presents criteria for effective vocabulary instruction that has been derived from research. It describes several strategies for classroom use and explains how each strategy meets the criteria.

Graves, M., & Prenn, M. (1986). Costs and Benefits of Various Methods of Teaching Vocabulary. Journal of Reading, 29 (7), 596-602.

Discusses various levels of word knowledge and suggests specific costs and benefits of different methods of instruction to achieve the different knowledge levels. Costs and benefits involve the time involved in preparation and delivery for both teachers and students.

Irvin, J. (1990). Vocabulary Knowledge: Guidelines for Instruction. National Education Association: Washington, D.C.

This monograph provides a review of research pertaining to vocabulary instruction and provides explanations of learning strategies that are effective for classroom use.

Kameenui, E., Dixon, R. & Carnine, D. (1987). Issues in the Design of Vocabulary Instruction. In M. McKeown & M. Curtis (Eds.), The Nature Of Vocabulary Acquisition (pp. 126-146). Hillsdale, N. J. : Erlbaum.

Reviews the dimensions of vocabulary learning and provides a new perspective and model for vocabulary instruction. The program provides for a three tier model involving individual word learning, using context to develop word meaning and vocabulary acquisition in content areas.

Nagy, W. E. (1988). Teaching Vocabulary to Improve Reading Instruction. Newark: Delaware: International Reading Association.

Reviews research on numerous questions pertaining to vocabulary acquisition. Describes various strategies that are effective for improving vocabulary learning.

Nelson-Herber, J. (1986). Expanding and refining vocabulary in content areas. Journal of Reading, 29 (7), 626-633.

Discusses the relationship between direct vocabulary instruction and comprehension with an emphasis on its importance to content reading. Suggestions for instruction include introducing words in concept clusters to expand knowledge and to refine meanings by recognizing relationships among words in clusters.

Stauffer,R. (1969). *Directing Reading Maturity as a Cognitive Process.* New York:Harper&Row.

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6 UNIT

Metacognition

Unit Overview

Contents:

A. Suggestions for Staff Development Activities

B. Unit Essay

Focus — Introduces the importance of metacognition in the construction of meaning in text.

1. What is Metacognition?
2. Why is metacognition important to reading?
3. How does metacognition enhance the reading process?
4. What role does metacognition play *before* reading?
5. What role does metacognition play *during* reading?
6. What role does metacognition play *after* reading?
7. How can students be taught to become more metacognitive?
8. What are some ways in which teachers can help students improve their metacognitive skills?

Reflections — Answers to questions you may have about how to integrate the use of metacognition in the classroom

C. Annotated Bibliography

UNIT OVERVIEW

In this unit of the Strategic Reading Project, we introduce you and your school to methods of helping students use their metacognitive skills in constructing meaning from text, thus improving their comprehension skills. This unit answers three basic questions about the concept of metacognition, as well as some subordinate questions that elaborate these basic questions:

1) What is metacognition?

2) Why is metacognition important to reading?
   a. What strategies do students already have in their repertoire that could help them read?
   b. What kind of readers are the students presently?
   c. What do the students know about the reading process and effective reading strategies?
   d. How do the students know what is effective in reading?

3) How can students be taught to become more metacognitive?
   a. How can you connect to the students' understanding of reading?
   b. What role does the type of text play in promoting metacognition?
   c. How does explicit instruction and modeling enhance the metacognitive skills of students?

UNIT 6

Suggestions for Staff Development Activities

Building A Knowledge Base

- Read the Unit Essay on Metacognition.
- Consult the Annotated Bibliography and select one or two articles to read.
- Discuss the readings with other teachers.

Before you read...

- Write your definition of metacognition. Consider what makes someone a good reader and why. What metacogntiive skills are important for effective reading? What obstacles stand in the way of effective reading?
- Discuss what you do when you have trouble understanding a text. Discuss also what your students do. How does metacognition help you understand difficult text?
- Think about your own reading interests. How did those interests develop? How do your reading interests affect your use of metacognitive strategies in understanding text?
- Think about and discuss how metacognition plays a part in your reading instruction.
- Write any questions you have about metacognition and how it affects reading ability.

While you read...

- Think about how well you are comprehending the article on metacognition.
- Are you aware of when comprehension becomes difficult?
- What features of the text make comprehension difficult for you?
- What strategies do you utilize to "fix" your lack of understanding?

After you read...

- Summarize the ideas in the unit.
- Compare what you read about metacognition to the definition and perceptions you had before reading.
- Compare what you read about metacognition to your current reading instruction.
- Consider whether your questions were answered, what questions still need to be answered, and what new questions you have.
- Discuss ways students' metacognition can affect their reading.

Observing Models and Examples

- Listen to the SRP audiotape on metacognition and discuss it with your colleagues. Sit in on a classroom demonstration or watch a videotape where metacognitive strategies are being utilized. Discuss the following questions with your colleagues:
  - How did the demonstration clarify and build on what you learned about metacognition?
    Identify how metacognitive strategies were introduced.
    Identify examples of guided practice with the strategies.
    Identify examples of independent practice.
  - How can you apply the ideas in your classroom? What problems do you foresee in trying to apply them?

- How do your instructional materials, like basals, trade books, and textbooks, enable you to apply what you have learned? What problems do they present?

- Practice "thinking aloud and modeling aloud" with your colleagues.
- Discuss how you might utilize small groups or peer instruction to aid all students in becoming proficient metacognitive readers.

Reflecting on Your Practice

- Brainstorm with your colleagues alternative or adapatations of the examples in the audiotapes, demonstrations or videotapes, and the articles that you think would work in your school.
- Analyze a reading lesson in terms of how it helps students utilize their metacognitive abilities to understand text.
  - Do you see examples of explicit instruction and modeling?
  - Is there an effort to integrate metacognitive strategies with instructional goals, students' prior knowledge and abilities, and the difficulty of material?
  - Do you see examples of guided practice?
  - How are students who experience comprehension difficulties helped?
  - Do you see examples of independent practice?
  - Does the teacher gradually release responsibility fo ridentifying the need for metacognitive strategies and for using them and turn this responsibility over to the students?
  - Is it assumed that students will understand how to use these strategies without direct instruction?
  - Are the goals of instruction in line with the materials used in the lesson?
  - How is the text selected?
  - Does it provide good examples where using metacognitive strategies is helpful?
  - What happens when planned instruction is not effective?
  - Is metacognition addressed before, during, and after reading?
- From this analysis, identify strengths and weaknesses in your current reading instruction.

Changing Your Practice

- Observe another teacher using metacognitive strategies or invite a teacher to provide a lesson metacognition to your class.

- Meet with other teachers interested in metacognition at your school to exchange ideas about utilizing this strategy with a variety of materials. Provide support and feedback to one another in using meatcognitive strategies in the classroom. Generate ways you can help students use metacognition whenever text is difficult for them.
- Rewrite a lesson so that it helps students use metacognition for understanding the text.
- Begin collecting lesson plans from a variety of content areas that utilize metacognitive strategies.
- Plan a unit to teach metacognition. Keep a journal that recounts your successes and problems and that reflects how any articles and your discussions with your colleagues have helped you plan and ot implement your plan.
- Identify a problem you feel you have in teaching metacognition. Invite a colleague to observe your classroom when you teach metacognition to provide feedback to help you solve this problem.

Gaining Expertise

- Model teaching the use of metacognition to aid in reading comprehension in another teacher's classroom.
- Coach a colleague who is learning to teach the use of metacognition.
- Create staff development materials and activities for other staff in your school or school district to ensure the understanding of the importance of metacognition to comprehension of text in all content areas. Identify professional resources that are most effective in explaining metacognition and how to teach it.
- Design demonstration lessons, including videotapes, to facilitate using metacognitive strategies in all classrooms. Collect such lessons from other teachers to create a resource library.

ESSAY

Harry was lying on the bed in the cramped dorm room, watching his roommate read at the desk. He was worrying about how poorly he was doing in physics. The hopes of becoming an engineer were receding fast as he received failing grade after failing grade on his quizzes.

He couldn't understand what he was doing wrong. He did well in physics in high school; he memorized all the formulas and worked the problems. But this physics seemed different—the textbook set up problems that didn't make it clear what formula should be used. "Maybe," Harry thought, "I should just drop out and go to work. Maybe I'm just not smart enough for college."

He heaved a sigh, and glanced at his roommate, Steve, reading again. "For a smart guy," Harry blurted out, "you sure do read slow." Steve was reading the same seemingly useless physics textbook that Harry had given up on.

Steve explained his effortful reading: "I was trying to figure out why the chapter was called 'thermal Properties of Matter,' when, after looking it over, I see it mostly talks about pressure and volume for gases—just one state of matter. Then I noticed it talked about gauge pressure, something that was explained in another chapter before on 'Hydrostatics.' So I was refreshing my memory on what gauge pressure is, and thinking about what I've learned about gas behavior and changes in states from chemistry."

"You know, I never really read the book that carefully. I don't have the time. I mostly hunt for the equations that are going to help me do the problems," Harry said. Steve frowned and replied, "You don't really understand the equations or the problems unless you think about the ideas behind them. And that's what the text presents—the ideas."

"Yeah, whatever you say, Steve," was Harry's flippant response, but he began to think about Steve's approach. Perhaps he could do as well as Steve in physics if he read the physics textbook more carefully and took time to reflect on the concepts it presented. It was true that he would ignore terms he didn't know, skip over discussions of concepts, stare blankly at graphs and models and not examine how they helped to develop ideas in the text, and focus on the result of a derivation, an isolated equation, rather than how it was developed from other equations already established. So maybe he didn't understand physics because he never *really* though about physics. This thought was enough to get him out of bed, pick up the physics textbook, and start reading—this time with effort and focus, more confidence, and a new expectation that physics, and the textbook, could be meaningful.

WHAT IS METACOGNITION?

Harry is on the road to becoming more metacognitive about his reading. He is beginning to think more carefully and relectively about how he approaches the task of reading. When a skilled reader, such as Steve, is metacognitive in his reading, he makes plans for reading before diving into the text. He monitors how well his plans are going as he reads the text, then makes modifications in his strategies to ensure that he is comprehending the text as fully a possible. Finally he evaluates his efforts at reading when he finishes the text, re-reading those parts that he finds are still unclear. In a sense, the skilled reader has a "third eye" that observes, adjusts, and assesses how well the reading process is proceeding.

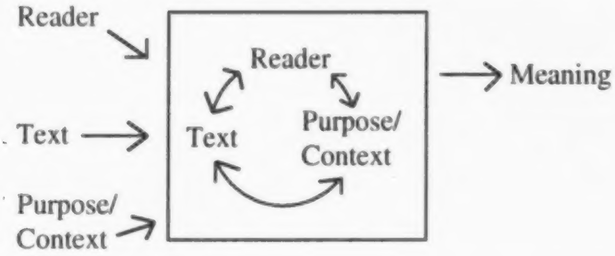
Metacognition is a broadly-defined term for taking charge of your own learning. Some people say metacognition is "thinking about your own thinking." It is what you do when you determine and adjust the approach that you take to thinking and learning. It involves: 1) the attitude that you adopt toward a learning task, and what is to be learned; 2) the skills you select, deploy, and modify as you engage in learning; and 3) the knowledge that you have about what good learning and thinking is, and under what conditions you learn and think most effectively. Metacognition enhances learning by guiding it, and by helping the learner follow a wise course of action as he or she thinks through a problem, makes a decision, or attempts to understand a situation or text.

Learners who are well-developed metacognitively are confident that they can learn. They make accurate assessments of why they succeed in certain learning tasks, and are able to think clearly about what they have done wrong when failure occurs in these tasks. These students actively seek to expand the repertoire of strategies that they have at hand to learn better, and consider how to match a set of strategies to a learning task, making adjustments when necessary. They find the guidance that is needed, from more able peers or the teacher, that enables them to take the next higher step in mastering an area of study, then learn to do this step on their own. Metacognitive learners take time to think about their own thinking, to reflect on their approach to learning critically. They view themselves as continually developing learners and thinkers. Hence, as learners, these students are confident, strategic, self-directed, and knowledgeable about learning in general and themselves as learners.

Why Is Metacognition Important in Reading?

Metacognition is especially important in reading because, as you know, reading is a complex cognitive process that requires the orchestration of a set of interrelated processes:

- Activating a repertoire of strategies for reading, such as calling up prior knowledge, determining word meaning, making inferences from the text, and using text structure to help the *reader* process information and construct meaning; being aware of one's background, interests, and abilities as a reader and learner is also an important aspect of this process;
- Responding to the *context* in which reading occurs (such as the goals set for reading and the resources at hand for accomplishing the reading task);
- Adjusting to the unique qualities of a particular *text*, such as its complexity, length, tone, and genre.



Being metacognitive, or thinking about their own thinking, allows readers to gain control of the reading process. Even though we know reading is an interactive process, readers themselves *must* orchestrate the interaction. This orchestration is accomplished as the readers activate their prior knowledge, and call upon their previous experiences; they respond to the reading context, deciding whether to accomplish an assigned task, or if it is necessary to expand their reading to add to their own knowledge base. They adjust to the text, its structure, and tone.

Metacognitive readers take stock of the the strategies that they have; know about themselves and their feelings as readers; learn and apply reading strategies; develp a well-articulated understanding of reading; and carefully evaluate their performance as readers in to order to refine the reading process. They learn to ask themselves the following questions, and to develop increasingly sophisticated answers to them over time.

- **"What strategies do I have in my repertoire that could help me read?"** Before, during and after the reading process, the metacognitive reader takes time to think about what strategies could help him read better. He tries to select the strategy, or group of strategies, which seem best matched to the task.

- **"What kind of reader am I?"** The answer to this question reflects the student's feelings about him or herself as a reader. This will, in part, determine his or her confidence in confronting the reading task, shape his or her attitude toward reading, and contribute to his or her motivation to read well.

- **"What do I know about the reading process and effective reading strategies?"** This concerns the sophistication of the student's conception of reading, especialy his or her degree of understanding that reading is an ongoing process of constructing or negotiating meaning, a meaning which emerges out of the interaction of the reader, the text, and the context. Answering this question also involves the reader in laying out the strategies s/he plans to use, and monitoring the implementation of that plan, making modifications when necessary.

- **"How do I know what is effective in reading?"** The metacognitive reader actively gathers evidence on the effectiveness of his or her approach to reading, and uses these conclusions from this evidence to improve reading in the future.

The text below discusses how this self-questioning is reflected in the roles that metacognition has in the reading process. In summary, metacognition combines most of what we know about effective reading into one powerful strategy. When students learn to be metacognitive, they use their own thinking to think about how to monitor and assess what they are reading and learning. Using their knowledge about what makes for effective reading and learning, they can successfully apply strategies to texts and learning tasks. Without metacognition, students cannot be strategic in their reading and learning tasks.

The Roles Played By Metacognition In Reading

Metacognition plays important roles in the following: (1) ensuring that reading strategies, onece learned, are used when appropriate, in a variety of situations; that is, that the strategies are *transferred* to a wide range of reading tasks; (2) focusing the attention of students on the role of their *feelings* and attitudes on the reading processs; and (3) failitating the reading process throughout all of its phases — in particular, helping the student *plan* before reading, monitor during reading, and evaluate the reading performance after reading. (See graphic 1.) These roles are are further discussed below.

Transfer of Reading Strategies

Most teachers have had the frustrating experience of using valuable instructional time to teach a learning or reading strategy, only to find that students do not employ it later. A teacher may find, for example, that students can activate their prior knowledge about the topic covered in a text when she prompts them, but is frustrated that, after repeated promptings, the students do not think to do this independently. Various metacognitive factors may come into play here to impede students in their development toward self-directed reading and learning. Perhaps the students are too anxious or unsure about their ability as readers to be more reflective and strategic in their approach to reading. Or the students may need more detailed information about *how* and *when* to use the strategies, or an elaborated description of *what* the strategies entail. Addressing any one or more of these metacognitive factors, or others, may be crucial in helping students become more strategic in their approach to learning. Hence, metacognition can play a vital role in better ensuring that students transfer the knowledge and reading skills that they learn about in one context to other contexts.

Example

Teacher (2nd grade classroom):

Students , open your science books to page 57. What are we going to study about today?

Class:

Our earth.

Teacher:

How do you know the science lesson is going to be about our earth?

Student::

Because the title at the top of the page says "Saving Our Earth."

Teacher:

Good! Now is the lesson going to be about saving the whole earth, all the people on it, all the animals, all the fish in the seas, and all the mountains or just certain parts of it?

Student:

It's probably going to be about saving the trees on earth.

Teacher:

Why do you think it is going to be about trees and not about saving the animals?

Student:

In reading class, you tell us to look at the title and the pictures and then try to guess what the story is going to be about, or guess what is going to happen next. So I did it the same way—I read the title and looked at the picture. The picture is a forest with a whole lot of trees, but I don't see any animals, that's why I think it is going be about saving our trees.

Teacher:

Excellent! You just made a good guess or inference about our science lesson for today, just like you made good predictions about your story in reading this morning. In your reading story, you first read the title and looked at the pictures; then you tried to guess what the story would be about. Just now, for the science lesson, you did the same thing, in other words, you used the same strategy and it helped you to make a good inference. All of the things we have been learning to do in reading that will help us be better readers are important and useful when we read other materials and books, like our science, social studies, library books, or even word problems in math. We have to try to remember to use our plans or strategies in class and when we read by ourselves.

Attention to the Emotions involved in Reading

Metacognition also plays an important role in influencing the attitude and feelings that learners have about reading and their motivation to read. If students have a history of success in reading, if they are surrounded by individuals who value the printed word (including those in the school community), and if academic success in general is prized, students are more likely to be motivated to read, and to employ the strategies and knowledge they have learned to improve their comprehension. Students who are able readers are aware of their strengths and weaknesses as readers, and know that they need to apply strategic effort to continue to develop as readers. Able readers see their success in reading not as chance occurance or due to fixed innate ability, but as a result of effort over a period of time. They feel in control of the reading process and confidently manage all aspects of the reading task before, during, and after its completion.

Example

Teacher:

What do you do when you have to read a new chapter in your *World Cultures* book, which contains unfamiliar words and ideas?

Student:

I do what I always do whenever I read something. I read the title, thumb through the material to see how long it is, how it is organized, if there are words in bold print, and whether or not there are pictures, charts, or graphs that I should pay attention to.

Teacher:

Those are good strategies, but what do you do to help your understanding of the text when you come across unfamiliar words and ideas?

Student:

Usually I see if I can figure the word out from the sentence or paragraph that it's in. Or sometimes, I might try to substitute another word in place of the one I don't know and then see if it makes sense.

Teacher:

Does that strategy always work?

Student:

No, if the word comes up again and again and I don't think I have a good idea of what it means, then I might look it up. But either way, I am able to get the "gist" of what is being said. I don't let a few unfamiliar words stop me.

Teacher:

Do you sometimes feel overwhelmed when you have a hugh or several reading assignments?

Student:

Sometimes, like when we have a big assignment to read, and have to write a report about it, I'll get a little scared. But then, I just take a deep breath and start. I know that if I use all my strategies, I can figure things out. I just need to take things one step at a time and not worry about how hard it's going to be.

The Before Phase: Better Planning of Reading Tasks

Metacognition plays an important role in all phases of the reading process. During the "before" phase of reading, the metacognitive reader:

- sets goals for reading
- activates prior knowledge about the topic to be read
- skims to determine headings and text structure
- makes predictions about what will be learned

The goals put forth are appropriate for the task demands and the abilities of the reader. Before reading, the student who is metacognitive, also thinks about what s/he already knows about the topic, and may spend time brainstorming with peers on the topic. Intelligent predictions about the content of the text are based on information gleaned from the title, headings, graphics, and text structure (such as a story grammar).

The strategic reader also uses other techniques that result in productive reading, these include:

- creating a good environment for reading
- thinking about which procedures should be employed to support good comprehension, such as underlining, notetaking, question posing, and so forth
- concentrating on getting a useful, working picture of the text and its structure as a whole

The During Phase: Better Monitoring of Reading Process

During reading, the reader will stop to think, upon occasion, about the effectiveness, efficiency, and quality of the reading. If the reader is skilled, and the text is only of moderate difficulty, the student will usually become explicitly aware of his/her own reading process only when s/he senses trouble in comprehension, and needs to stop to make repairs in understanding the text. On the other hand, if a student is a poor reader or if the text is especially difficult in content or structure, then the reader may need to be more explicit in adopting a strategic stance toward the task of reading. The reader will self-consciously apply a number of strategies available, such as:

- testing, retesting, and reformulating previous predictions about the content of the text, especially its key concepts
- stopping at certain points and summarizing what has been read
- taking notice of certain words or phrases that are not fully understood; targeting the ones judged "important," and attempting to guess their meaning from context
- posing questions that can probably be answered by reading the text
- re-reading what is not intially understood

These, of course, are just a few of the strategies that students can use. What is important, is that they are cognizant of one or more strategies that will help them comprehend text more efficiently.

The After Phase: Thoughtful evaluation of reading performance

After reading, the metacognitive reader will think about the successes and failures in the reading process, and evaluate the extent to which s/he met her goals in reading, completed the task, and generally understood the text. There are some procedures the student can implement that will help, namely:

- summarize the key ideas of the text, perhaps by mapping out its content graphically
- evaluate what was learned from reading the text
- think about what is needed in order to learn more about the topic of the text
- determine the relationship between the topic of the text and with other learned information
- reflect on which strategies helped the most and which did not, and why
- think about ways in which a repertoire of strategies can be expanded to be even more effective and efficient in the reading process in the future

While the above lays out the planning, monitoring, and evaluating phases in a linear sequence, the phases do not actually occur in a lock-step sequence as one reads. You may, for example, have one plan in mind for reading, read a page or two of the text, and then realize that you need to reformulate your plan if you are to be successful in reading the rest of the text. You have moved from planning, to monitoring, and back to planning.

Good evaluation always has this character: It yields information that will be useful in helping with future planning. You may also loop back within a particular phase. For example, you may be monitoring the effectiveness of one of your chosen reading strategies, let's say inferencing, and find that you have made certain assumptions in making inferences which are not supported by the text. Hence, you go back to re-do your inferences in light of your new evidence and changed assumptions.

In summary, metacognition plays an important role in helping the reader assume a constructive attitudinal orientation towards the reading process. To use the lingo of students, the reader "psyches" him/herself for the reading task by having a "one-sided, ongoing conversation in which s/he tells him/herself that:

- I have the ability, with intelligent and sustained effort, to successfully read the text
- I have learned a great deal about how to learn in general, and how to "read" in particular
- I consciously and persistently expand and hone my repertoire of strategies
- I monitor, execute, and evaluate the strategies I employ
- I am truly metacognitive

When a reader can perceive him/herself in this manner, then s/he has discovered the right path to becoming a successful reader.

Teaching Students To Be More Metacognitive

There are a number of ways that we learn to be more metacognitive about our own reading. Looking at those ways of learning will help us think about how to teach students to be more metacognitive. Harry, in the "Focus" section, was learning from his roommate Steve about some helpful strategies to use in reading the physics textbook effectively. Steve attempted to explain to Harry the strategies he used, namely: activating prior knowledge, determining word meaning, and making predictions about the content of text.

Equally important, Steve assumed the attitude that the text would be meaningful, and that he could construct ideas from interaction with the text, which would help him understand the physical world and solve problems. For Harry, Steve's explanation and example proved powerful in motivating him once again to try to make sense of the textbook, additionally, suggesting strategies he could use was most beneficial.

Using Other Methods To Aid In The Metacognitive Process

There are other ways, aside from explanations and examples, that can be utilized in helping students learn about how to read and how to become aware of and control the reading process. These include the students:

- being directly taught what a strategy is
- receiving directions regarding the use of strategies
- being provided with explanations on the usefulness of strategies

- being made aware of when and where to apply the strategy

Additionally, a teacher or more able peer can further enhance students metacognitive processes by making his/her "invisible" *thinking about thinking* that occurred during the reading process, "visible" by thinking aloud about the following questions:

- Which strategy or strategies were selected?
- Why were they selected?
- How were these strategies used?
- Were they helpful in fostering comprehension?

Students can also *practice* the strategy with the help and feedback of more able peers or teachers. They can try the strategy first, in contexts with which they are familiar and confident, then gradually branch out toward more unfamiliar, difficult terrain, relying more and more on their own abilities. Thus, students can move through different ways of learning as they learn about metacognition; they can:

- gain explicit instruction and modeling
- engage in guided practice
- progress to independent practice
- refine and expand their learning through ongoing assessment

Instructional plans should incorporate all of these ways of learning about metacognition, and the plans should be structured according to learners' natural movement toward deepened learning. Harry was first given a basic idea of metacognition in reading by Steve. To go beyond this, Harry could further elaborate his learning about reading and use of reading strategies if he were taught to label, describe, and analyze those strategies. Direct instruction that provided him with a full understanding of the *who, what, where, when, why,* and *how* of using strategies and orchestrating all of these strategies in reading could be very valuable to him, especially in this beginning stage of learning how to read in a more metacognitive fashion. If this were followed up with Steve or a teacher helping him practice these strategies in diverse and more complex contexts, his learning would be extended. Eventually, he could take ownership of the strategies and employ them on his own. He would also learn how to evaluate his effectiveness in using the strategies. Throughout this learning process, he would cultivate an attitude of being a capable, self-directed reader actively employing and coordinating strategies to construct meaning from text.

The text below describes in more detail what a teacher should consider in planning instruction in metacognition (including student, context, and text variables) and then suggests ways to promote metacognition in all phases of the instructional cycle: explicit instruction and modeling, guided practice, independent practice, and assessment.

Planning Instruction for Improving Metacognition in Reading

The Teachers

Teachers can use all of the ways of learning-described above to help students develop and/or improve their metacognition in reading. They can use:

- direct instruction
- guided practice
- independent practice
- informal and formal assessment

In creating instructional plans that structure these approaches, teachers will want to consider the abilities and background of their students, their classroom context, and the nature of the texts being read.

The Students

Learners conceptions of reading and good reading grow more sophisticated over time, etc.,(continue text as is).

Effective instruction will also take into consideration the feelings students have about themselves as readers and learners. This is especially important for at-risk students, who often have a history of repeated failure and frustration in reading. These students will tend to attribute this failure in reading to their personal lack of ability, while any successes they experience will be dismissed as "pure luck." In order to change this pattern of attribution, explicit and sustained effort on the part of the teacher will be required to foster students' sense of self-efficacy as readers. This can be accomplished by providing consistent opportunities in which the students, in a "safe learning environment," are given the chance to:

- explore the unexplored regions of their knowledge base.
  (ask prereading questions about an assigned topic to encourage students to use their prior knowledge and background experiences)
- make mistakes without being made to feel intellectually inferior.
  (demonstrate, model, and assure students that making an error is "okay;" that even you, the teacher, make mistakes, but it doesn't mean that one is "dumb.")
- experience success and the self- realization that they do indeed have the abilities to become proficient and independent learners.
  (reinforce, encourage, and praise the students' ability to use the various strategies as they work toward developing the skill of becoming effective readers and learners.)

Research in classrooms has shown that training students to see their ability to read as a function of their own effort, in combination with direct instruction and practice in the use of strategies, can be powerful in helping all students, of varying abilities and backgrounds, become better readers.

In summary, teachers will want their instructional plans to take into account the background and experiences of students and their feelings toward reading tasks. Therefore teachers should allow space and time for prereading activities, such as discussing similar topics or titles, providing students with supplemental information that will encourage and stimulate critical thinking, and asking inferential and pertinent questions about the material to be read, as a means of "awakening" the students' prior knowledge. This prior knowledge forms their understanding of, and attitudes about, the reading process.

Context

The tasks defined for reading in the classroom should always incorporate a metacognitive component. There should be a stated and clear expectation that students reflect on the process of reading as an integral part of confronting any reading task. Students will discuss their plans for:

- ensuring a productive reading episode
- verbalizing their thoughts as they read to "make public" their attempts to construct meaning from text
- assessing the relative effectiveness of the various strategies they used in reading

In addition, students should be encouraged to express their feelings about the reading task and their understandings of what the reading process entails.

These metacognitively-oriented tasks should be situated in a literate, classroom environment. Examples of metacognition given thus far have focused on the individual, but actually metacognition can only be developed if it is made public. A classroom that is a literate community—that is, one that centers on the production of text, the dissemination of print-based information, and discourse avout what is read and how it is read — is a classroom in which students and the teacher have many opportunities to reflect on the reading process itself.

Example

Teacher:

We have had a good discussion about the rain forests and everyone seemed to have learned a great deal.

Student:

I think I learned a lot.

Teacher:

How many of your own questions did you find the answers for when you read?

Student:

Two of them.

Teacher:

How do you feel about that?

Student:

OK.

Teacher:

I am proud of you! Do you feel proud of yourself?

Student:

Yes!

Teacher:

Now we are going to talk about HOW we all learned so much! Before we started to read, we used a reading *strategy*—or we might call it a *thinking strategy*. (Teacher writes both terms on board and then, using an overhead grid that says "WHAT, WHEN, WHY, she writes *using prior knowledge* next to the term WHAT.) Our strategy was using prior knowledge. When did we use it?

Student:

Before we read the story.

Teacher:

That's right, tell me more—what were we talking about?

Student:

I really can't remember.

Teacher:

Can someone help her out?

Student:

We talked about what we heard on the news about rain forests and we asked Concetta what she knew about living in South America 'cause she lived somewhere near there. Then someone else said they had read a story about a boy who lived in a place that had a rain forest and it was always hot there.

Teacher:

Great! Now let's summarize, (she begins a sentence for the students: "We used prior knowledge WHEN..., pointing to the grid, we talked about..." "...what we already knew about rain forests," someone volunteered.) Teacher writes response next to WHEN on the grid.

Why is that strategy—using prior knowledge—important?

Students:

It helps us read better. It helps us know what to look for. When Concetta said it was hot in Guatemala, we wanted to know if it was hot in Brazil too, so we made a question out of it.

Teacher:

Good, that's important. Let's summarize what everyone said and write it here next to the word WHY. It's important to use prior knowledge because...how about if I write...it helps us think about what else we might want to learn.

Text

Not all text is especially appropriate for promoting metacognition. The best text for stimulating metacognition is moderately difficult, interesting, relevant, and varied. Text that is too easy will not cause metacognition to become explicit. If it is easy text for the students, they will not need to become aware of how to plan to read and how to approach the reading process itself. However, if the text is too difficult, students will be overwhelmed, and they will not be able to make a serious attempt at presenting too much information and conveying complex, abstract concepts, or too difficult in its structure, as with an elaborate philosophical argument. The right text is somewhere between these extremes, challenging yet accessible.

In addition, if the text is not interesting or engaging, students will not want to expend the effort to understand the text. The text should be somewhat familiar, connected to the experiential base of the students, but not so common as to be boring. Text with these features—of moderated difficulty, interesting, and connected to students' experience—is suitable for stimulating reflection on the reading process.

Text should also be varied over time in its structure and genre. Teachers will want to use both narrative and expository genres—poems and short stories, newspaper articles and essays. Texts may be highly structured, as with textbooks, or loosely structured, as with diaries. Students will learn that different texts require different strategies, an important milestone in their metacognitive development.

Example (Narrative Text)

Teacher:

The story we read today, from Rudyard Kipling's *Jungle Books*, the author talked about an unusual class that was held by the animals for Mowgil. Mowgil was an Indian boy who had been adopted by a wolf pack, but some of the other animals had taken the responsibility of teaching him something about the "The Law of the Jungle." Do you think this is a true or fictional story?

Student #1:

It probably is fiction, but it could be true. There was a movie about a boy who was raised by wolves and when he was found by some hunters and taken to England, he couldn't talk, didn't know how to use silverware, and acted just like a wild animal until he was taught how to act like a human.

Student #2:

Animals take care of and raise other animals that are different then they are. Once, on the news, there was this story about a mother duck who let a baby kitten be a part of its family. The kitten followed the mother duck and her babies all over the barnyard. So the mother wolf could have found the boy when he was just a baby and decided to keep him.

Student #3:

It may be true that animals raise other animals, but I think this story is like a fairy-tale because the animals are talking and we know that animals do not talk, using English like we do. And also the way the story starts off kinda tells you that is a made-up story.

Teacher:

Does everyone agree that the story is fictional? Okay. Now, why do you think the wolves didn't eat Mowgil when they first found him?

Student:

A female wolf probably found him and wouldn't let the other wolves eat him because mothers are very protective, so she just adopted him as one of her babies, even though he was different.

Teacher:

The story talks about Mowgil being taught the laws of the jungle—do you think it was necessary to have laws in the jungle? I always thought the animals did whatever they wanted to do, without giving any regard to anyone else.

UNIT 6

Student:

In one of our social studies lessons, we learned that every society need some kind of laws or rules or everyone or everything would be real crazy or out of control. The jungle is like a kind of society, only it's with animals instead of people, so they needed laws too.

Teacher:

Why do you think the other animals felt it was necessary to teach Mowgil the laws of the jungle?

Student:

Because he was new and different and didn't know the do's and don'ts of the jungle. It's like when a new student comes into our class and we have to tell him/her about our classroom and school rules so they won't get hurt or get in trouble.

Example (Expository Text)

Teacher:

Today we are going to begin the unit on The Industrial Revolution and its effect on the population shift from rural to urban areas. What do you think the phrase "industrial revolution" is referring to?

Student:

I don't know.

Teacher:

Well, let's take a look at the words in the chapter's title, *industrial*, does that ring any bells?

Student:

I know that the word "industry" has to do with manufacturing or producing a lot of things or goods at one time for sale, like the automobile industry. My uncle works at a plant where they assemble the headlight parts for cars, so he tells people that he works for the automobile industry.

Teacher:

Very good! Now what do you know about *revolutions*?

Student:

We read and studied about the American Revolution between the colonies and England, when the colonies got really tired of England telling them what to do and taxing them without their input.

Teacher:

So what happened?

Student:

The colonists decided it was time to change how things were done, so they decided that they were not going to be bossed by England any longer; England didn't like that and tried to force the colonies to behave, so a war broke out between the two.

Teacher:

So are you saying that "industrial revolution" is referring to a war?

Student:

No, I think revolution in this case means that a big change or turn around is taking place because people are tired of doing the same things the same old way. Or that they got smarter and figured out how to do things faster and better. Or maybe it means declaring war on the old fashioned way of doing things, but just not fighting to get people to change.

Teacher:

That is an interesting point. How do you think things or goods were made before industry or manufacturing came along?

Student:

They were handmade, like the pilgrims had to cut down trees hew them out and strip the bark, and then make the chairs, table, and beds by hand. They didn't have furniture factories with a bunch of machines to make their furniture.

Teacher:

Okay! So after putting together all this information that we just shared, do you think you can now take a "stab" at my question—what was the industrial revolution?

Explicit Instruction and Modeling

There are a number of ways you can help students begin to build an understanding of what it means to think about reading. You can build on their understanding of the new definition of reading, which makes metacognition part and parcel of reading. You can model metacognition by thinking aloud, or you can provide metaphors and definitions of metacognitive activity. The text below describes these approaches.

Connecting to students' understanding of reading

An understanding of metacognition in reading should build on students' more general understanding of reading. As discussed in "The New Definition of Reading," reading is a process of constructing a representation, or model, of text in the reader's mind, a process which is an outcome of the interaction of the reader, the context, and the text. If this process is to be directed in such a way that a robust model of text is generated, then the reader must be planful, vigilant, and critical about the reading process.

The new definition of reading can be analogized to construction. Building a good model of text is similar to building a good skyscraper. It is not enough to have good construction workers, you must also have a good architect to create plans, a good foreman to direct the work, and a good construction engineer to plan for and monitor structural soundness. Similarly,, to build a good model of text requires more than being a good decoder, you must also be clear about your goals for comprehension and how to reach them (a good planner), check up on your success in implementing the strategies (a good monitor), and assess the degree to which you have accomplished your goals in reading (a good evaluator). The latter are essentially metacognitive functions in understanding of the new definition of reading and the role of metacognition in reading.

Modeling

It is difficult enough to explain the concept of metacognition to adults, much less convey the notion to students. Nonetheless, we all engage in metacognition on some level. There are times when we become acutely conscious of how we are thinking, especially when the problem or topic before us is difficult or unfamiliar. At such times, we ask ourselves if we are thinking as effectively as we can, and how we might take a different approach.

Talking aloud before students as you are thinking through a problem or attempting to understand a text is one way to give students a concrete sense of what metacognition is. You can read a text before the class to model metacognition. Talk aloud as you step through the process of planning to read the text (e.g., setting goals, making predictions, getting "psyched"), monitoring the effectiveness of your strategies and re-evaluating them "on your feet," and assessing the quality of your comprehension after reading. Later, you may ask the class to help you step through the process with a shared text, with students beginning to share their metacognition. In this way, students begin to build an understanding of metacognition in reading.

Using metaphors

Another way to build an understanding of this admittedly difficult and abstract concept is by way of analogies and metaphors. Paris and Winograd, prominent researchers in the field, have used the metaphor of a "reading detective" with young children. This metaphor relates abstract thinking activities to the familiar activity of being a detective. A "reading detective" investigates text to gather evidence, collect clues, and reach conclusions about its meaning. Good reading detectives, students learn, will look at the title, the pictures, and the structure and content of text to build meaning. Other appropriate metaphors could include explorers, builders (as mentioned above), and scientists.

Providing Definitions

Yet another way to build an understanding of the concept of metacognition is to create simple definitions of metacognition, in language that the students offer. Metacognition can be defined as "looking at what's going on in your head" or "thinking about thinking" or "stopping, stepping back, and looking at how you're thinking." Such simple definitions, in addition to modeling through think-alouds and using accessible metaphors, will help students gain an understanding of metacognition, and become comfortable using it as a label in discussing thinking and learning.

Guided Practice

Once students become familiar enough with the idea of metacognition, you can guide them in becoming more and more aware of their thinking processes. You can do this by interviewing them individually as they read text, having them reflect on and verbalize their thinking about reading in small groups, and leading whole-class discussions on what reading is how you build meaning from text. You could also interrupt silent reading and have students write down their current thoughts about what they are reading.

These types of activities provide good opportunities for analyzing metacognition in reading even more carefully. Students will talk through the problems that they have in reading text, and become more sophisticated in diagnosing the cause of those problems, identifying means of addressing those problems, and assessing the effectiveness of their strategies. They will come to recognize that simply having a repertoire of reading strategies is not enough to ensure good comprehension: they have to *want* to use these strategies, and that desire will shape their expectation that they can understand the text with intelligent effort and that the text is worth understanding; that they are aware that they possess these strategies and know when they are appropriate to use; that they have a clear enough understanding of what the strategies entail; and they know procedures to employ in applying the strategies to the reading task.

The teacher can serve as a coach in helping students become better diagnosticians and problem solvers of reading comprehension difficulties. Coaching can help students get feedback about how they are reading, develop the language to describe what they are doing as they read, and use that feedback and awareness to read more effectively. Coaching also provides an opportunity for teachers to provide positive feedback for good planning, successful monitoring of implementation, and insightful self-assessment. Students should also be encouraged to assume the rule of coach with their peers, and help their peers become more reflective about their own reading process. This coaching can occur one-on-one, in small groups, or in whole-class discussions.

Independent Practice

As students talk and think about their reading, they begin to internalize a self-conscious, purposeful approach to reading. They take ownership of the strategies that they have learned, and select and apply those that are appropriate to the reading task at hand. They become more metacognitive in their independent thinking an behavior directed at comprehension. This is often manifested as greater awareness of their self-talk about reading and during reading.

This self-talk is actually an internalization of the dialogues that they have had about reading with peers, teachers, and others important in their lives. Productive self-talk about reading is focused on making affirmative statements about one's ability to read well, and on reminders and strategies that one needs to consciously plan, monitor, and evaluate the reading process to ensure comprehension. In independent practice, the student learns how to become especially attentive to mental "red flags," indications that there has been a break in understanding, such as wandering thoughts and feelings of frustration and confusion.

Growing independence in metacognition is marked by a greater facility in being aware of and controlling one's comprehension with a wider variety of texts and with the full repertoire of one's learning strategies. An independent, self-regulated reader can be metacognitive with texts of different structure, genres, complexity, and length. In addition, the self-regulated reader is metacognitive in planning, monitoring, and evaluating the full range of strategies (e.g., inferencing, analyzing text structure, using prior knowledge, determining word meaning) and metacognition in coordinating these various strategies. In this phase of the instructional process, the reader grows to be independent in her or his approach to selecting, applying, and orchestrating strategies for reading.

UNIT 6

Assessment

Actually, assessment is not a discrete phase of the instructional cycle, but pervades all other phases. Skillful coaching involves giving the learner an appropriate level of support, just enough to enable the learner to meet the challenge before him, but not so much help that the learner is not required to think independently. Adjusting your instruction as a coach requires an accurate assessment of the learner's current ability and understanding. This assessment is based on informal observation and conversation with the student. As the student moves from this guided practice and feedback to independent practice, s/he should be able to assess his or her own awareness and control over the reading process. The skillful, informal assessments provided by the coach are internalized as accurate, useful self-assessments.

Beyond these informal modes of assessment, there are more formal modes of assessment which can be used to monitor and evaluate metacognitive development. For example, students can keep journals tracking the growth of their understanding of the reading process, and more skillful use and elaborated knowledge of various reading strategies. In addition, there are paper-and-pencil reading tests, such as Degrees of Reading Power (DRP) from the College Board, that incorporate questions tapping metacognition about reading, with items on students' knowledge about reading strategies and when to use them and their attitudes about reading. Assessment, both formal and informal, can provide feedback that becomes part of metacognition itself for students.

Reflections

I know that metacognition is supposed to be something that all students can do, but I'm concerned about my lower level learners. Can they really learn to use metacognition?

Yes, even lower level learners can use metacognitive strategies. Every time a child explains his thinking to you, he is using metacognition—thinking about thinking. Students who are capable of thought are capable of explaining the reasoning processes behind that thought. In some cases you will be helping learners to label or identify their strategies more than teaching them new ones. In other instances, you will actually be instructing students in new strategies. In all cases, students can learn to be metacognitive readers.

Are there things outside of formal instruction that I can do to enhance my students' reading abilities and the use of metacognition?

The most important thing that any teacher can do is to be a good role model. It is essential for you to convey to your students that you value reading and use it in your daily life. You can accomplish this by reading aloud to your students—not just stories, but newspaper and magazine articles can be useful. Also, indicate to students the value of written directions and reading and writing as vital forms of communication. Start a class newspaper, write short notes to your students and encourage them to share their writing with each other. A classroom rich in the printed word will serve to saturate students with the message that reading and writing are important.

I'm worried that teaching metacognition will take up a great deal of my instructional time and will, in turn, prevent me from teaching other, also important, aspects of the curriculum.

Because one of the goals of teaching metacognition is to allow students to transfer their knowledge and strategies to all reading situations, instruction does not need to be confined to "reading class." Once students have a basic idea of some of the tenets of metacognition, they can rehearse that component in their content areas. This diverse rehearsal will also serve to aid children in their ability to apply these strategies. Teachers should make a conscious effort to teach metacognition as a content general strategy.

Does all of this instruction have to be direct instruction? I like to use group work frequently.

Metacognitive strategies lend themselves well to group work and especially group rehearsal. Students can share prior knowledge and predictions easily in small groups. They can also work together while they are reading—they can assess what they've read, make new predictions, and talk about the vocabulary words. And of course, they can certainly make comparisons of new and old knowledge, discuss information they'd like to learn and summarize together. All of this group work will help to reinforce and support individual growth.

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(in suggested order)

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Building on the connection between metacognition and motivation, this chapter emphasizes the need to teach learning strategies in order for students to successfully perform life's functions. Believing that they are acquiring important and useful learning tools make students more self-confident and builds their self-esteem. This, in turn, enhances learning and facilitates transfer. Understanding metacognitive theory, then, helps educators understand the interaction between metacognition and motivation, attitudes, and cognition.

Herber, H. & Herber, J. (1987). Developing independent learners. *Journal of reading, 30,* 584-589.

Using the goal for reading instruction as the development of independent learners, the authors present priciples related to creating that independence. The recommendations made are intended to add to teachers' instructional repertoires and to make teachers' efforts to teach strategically more effective. This can be accomplished in part by helping students understand the concept of metacognition and toemploy strategies to "fix" comprehension when it fails, enabling them to become responsible for their own learning. [See the **SRP Notebook, Unit I Overviewfor a copy of this article.**]

Paris, S., Oka, E., & DeBritto, A. (1983). Beyond decoding: Synthesis of research on reading comprehension. *Educational Leadership, 41,* 78-83.

This article dicusses three major kinds of knowledge that students must have in order to be strategic readers—declarative (knowing *what*), procedural (knowing *how*), and conditional (knowing *when* and *why*). The authors suggest that students must be taught these three metacognitive aspects of learning as well as have ample opportunity to practice them so that they can analyze, plan, monitor, and regulate their learning. [See the **SRP Notebook, Unit I Overview** for a copy of this article.]

Paris, S. G. & Winograd, P. (1990). How metacognition can promote academic learning and instruction. In B.F. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive instruction.* Hillsdale, NJ: Erlbaum.

Research has shown the importance of self-regulated, independent, and flexible learning. Metacognition, then, has gained recognition as a tool that can help students become more effective learners by providing insight into their own learning affect the strategies they utilize and the effort they put into a task. In realizing this affect aspect of metacognition and how it affects motivation, teachers can adopt instructional strategies that enable learning, even for the unsure or less-skilled students. This chapter provides both the theoretical background of metacognition and the instructional approaches that have proven efective in empowering students to take risks, to persist in the face of failure, to monitor their understanding—in short, to control their own learning.

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Evolutionary Staff Development: An Annotated Bibliography

INTRODUCTION

The annotated references to this document are divided into five categories.

1. Characteristics of Good Staff Development Programs
2. Staff Development Leadership
3. Reflecting on Practice
4. Peer Coaching
5. Making a Home for Staff Development

These references state what we have known for a long time: we can create excellent staff development projects that significantly improve student achievement. The literature is clear and consistent, both about what to do and what not to do. The challenge is to put good staff development practices to use in schools. Then staff development efforts pay off in improved application of instructional strategies and student achievement.

Putting good staff development practices into effect is not always easy. The challenges are many. Sometimes the school norms ("the way we do things around here") don't encourage or reward good staff development practices. Isolation within the classroom and limited opportunities for teachers to interact make it difficult for teachers to peer coach or collaborate to practice new strategies and skills, especially without training. Also, the standard practice in most American schools is to assign instructional responsibility or accountability to the classroom teacher, not teams or the entire staff. It is more difficult for staff to work together when the responsibility for performance is the individual's instead of a joint responsibility among the staff.

But there is reason to be optimistic. Many schools have met these challenges and created staff development experiences that bring about positive and sustained changes for both teachers and students. The annotations that accompany this document are really examples of how to overcome the challenges that come with staff development. The wisdom of experience and the descriptions of research combine to suggest powerful means to design and conduct good staff development efforts. The voices that speak through this literature have important stories to tell. There are schools that started with little agreement about the conditions of good staff development and ended up creating cultures and practices that promoted changes in teaching and learning. There are characteristics and principles that, when applied, lead to significant professional growth and increased student performance. It requires knowing what the literature says and then using it creatively and thoughtfully.

What does the wisdom of research and practice tell us to do? Schools that meet the challenges of staff development begin from the fact that teaching, like reading, is a highly complex craft that loses its meaning if approached as a series of separate skills. Staff are respected as professionals who have differing levels of technical skills and who are at different points in their careers. Staff development is not a set of activities where "one size fits all." The focus is on substantive issues related to student learning. Goals specify the increases in student performance expected from applying new strategies, programs, curriculum, and other teaching technologies. Staff can then clearly judge progress and celebrate achievements. (See **Characteristics of Good Staff Development Programs**.)

When staff development is a school priority, opportunities and time for staff to work together can be found. The message from research and practice is unmistakable. Isolation from peers must be eliminated so that teaching becomes a public rather than private act and staff teach in front of, reflect with, and coach each other. (See **Reflecting on Practice, Peer Coaching,** and **Making a Home for Staff Development**.)

One of the biggest challenges to creating good staff development practices is leadership. The staff development literature strongly indicates that leadership from teachers and administrators is facilitative and participative. Staff, as a rule, are involved as much as they want to be in activities related to their professional growth. And they are consulted before decisions are made, or they participate in the decision making. (See **Staff Development Leadership**.)

Characteristics of Good Staff Development Programs

Duttweiler, P. (1989). Components of an effective professional development program. *The Journal of Staff Development,* 10(2), 2-6.

> Duttweiler describes the purpose of staff (professional) development as one that promotes "positive changes in knowledge, skills, or attitudes that are congruent with established goals." By analyzing research and looking at the practice of professional development, Duttweiler identifies six components that, if used, will achieve the program's purpose.
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> The first component is setting the context (technical, interpersonal, and cultural) of professional development. The technical context includes the logistics of time, place, procedures, and resources that allow new skills and practices to be successfully implemented. The interpersonal context is the level of trust developed, the norm of peers supporting each other, and how open the communication within the school is. The cultural context is the degree of "organizational socialization," the shared school norms that encourage and support staff working together cooperatively and communicating often about teaching and learning.The second component relates to the administrative support given to professional development. The clear signals administrators give about their support through economic resources, policy statements, and interests are essential to make change occur.
>
> The third component focuses on the level of involvement, expressed needs, and opportunities for choice. The motivation to risk something new comes when the participant has control in determining the goals, objectives, and activities of the improvement program. Adults are more likely to respond to learning activities that fit some perceived need or professional goal. The more closely professional development activities are related to needs that fulfill work requirements and are viewed as solving needs, the higher the motivation to participate. If teachers are going to be "developed," they should be involved in all aspects of planning and needs assessment.

The fourth component of good professional development programs is continuity. This is the long-held and many times violated belief that change takes time and that "activities that are planned and organized around a theme and linked to district (or school) goals are more effective than a series of one-shot seminars." The fifth component stresses content that "addresses attitudes, skills, and substantive knowledge." Professional development should focus activities on the implementation of "best" practices as demonstrated by research and experience.

The sixth component suggests that the training design is consistent with the elements of effective training programs. They follow Joyce and Showers' (1983) design of presentation, modeling or demonstration, practice, structured and open-ended feedback about practice, and coaching for application. Described another way, good training design allows for demonstration of the skill, opportunities for practice, and performance-based feedback. It finally provides opportunities within the design for teachers to share what they know about what they do.

Fullan, M. (1990). Staff development, innovation, and institutional development. In B. Joyce (Ed.), *Changing school culture through staff development* (ASCD Yearbook) (p. 3-25). Alexandria, VA: Association for Supervision and Curriculum Development.

Fullan's article implies that staff development should be a significant part "of an overall strategy for professional and institutional reform." A second assumption about staff development is that "classroom and school improvement must be linked and integrated if serious improvements are to be achieved." If staff development is to play this major role in reform and improvement, then schools must do four things. They must have (1) a shared purpose (an agreed-upon direction and major goals to accomplish), (2) norms of collegiality (a belief in the practice of teachers working together), (3) norms of continuous improvement (a constant seeking of better solutions), and (4) structures that support significant improvement (policies, procedures that support school improvement, time to plan and work together, cooperative teaching opportunities, coaching, mentoring, etc.)

Fullan summarizes the article by saying staff development will never achieve its impact as a significant program that changes teaching and learning when it functions as something "unconnected" to school goals and priorities. It must approach teachers as life-long learners and integrate more broadly into professional growth within the organization of the school.

Guskey, T. (1986). Staff development and the process of teacher change. *Educational Researcher*, 15(5), 5-12.

Guskey believes that the three major outcomes of staff development are "change in the classroom practices of teachers, change in their beliefs and attitudes, and change in the learning outcomes of students." The important assumption on which to base staff development is that teachers change their beliefs and attitudes about practice after student performance changes are evident, not before. Beliefs and attitudes change after results are demonstrated. The implications for staff development based on this assumption have three guiding principles.

The first principle is that change is difficult. That means programs shouldn't be "dramatically different" from current practices in the school. The teacher should gradually move to increasingly more difficult and unfamiliar teaching practices. The second principle suggests that regular feedback about student performance is necessary for continued change to occur. It answers the teachers' question about "what are the effects of these changes on student learning?" The last principle states that "continued support and follow-up after the initial training" is essential in changing beliefs and attitudes. Examples of this principle include coaching, sharing, collegial planning, materials development, and the statement that a teacher's right to fail will be defended.

Hixson, J., & Tinzmann, M. (1990). *The meaning of professional development in the 21st century: A guidebook* (p. 8-20). Video Conference 8: Restructuring to Promote Learning in America's Schools. Elmhurst, IL: North Central Regional Educational Laboratory. Alexandria, VA: Public Broadcasting Service.

> Hixson and Tinzmann state that there are four important principles that guide staff development activities. One is that staff development (or professional development) is the activity that schools should use to implement important change efforts. The second principle is that staff development activities should be congruent with and support the school's and the district's goals for improvement and/or practice. The last principle is that staff development should reflect and build upon the diversity we find in student populations and in the community.
>
> The new priorities are for staff developers to become "change agents, facilitators, and mediators rather than simply skill builders or dispensers of knowledge" because change is now more systemic and pervasive. The authors believe this will require staff development activities to be school-based in order for them to have the most impact. This means schools must develop the capacity to change rapidly and sustain changes in their skills, knowledge, and strategies used in the classroom. It also means individual staff members "have a responsibility" to constantly improve their performance by reading current research, trying out new strategies and approaches to teaching, and sharing new information and experiences with colleagues that improve student learning.
>
> All this can be done by what the authors call "expanding the functions of professional development." These expanded functions are: (1) expanding the knowledge base (new information and conceptual understandings, research, curriculum, instructional approaches, etc.), (2) learning from practice (teachers teaching other teachers), (3) developing new attitudes and beliefs (challenging the status quo, "we can do much better"), (4) opportunities for self-renewal (becoming life-long learners who continually grow in their profession), and (5) collaborating with and contributing to the growth of others (collaborate with other teachers and administrators to improve practice).

Johnson, J. (Ed.). (May, 1988). Staff development: What works best? Resources and practice (p. 5-8). San Francisco, CA: Far West Laboratory for Educational Research and Development. Adapted from Little, J., Gerritz, W., Stern, D., Guthrie, J., Kirst, M., & D. Marsh (Eds.), *Staff development in California: Business and personal investments, program patterns, and policy choices.* Joint publication of Far West Laboratory and Policy Analysis for California Education (PACE).

"The growing professionalization of the role of teacher underscores the fact that conscientious practice — just as with a good physician or attorney — requires a continual upgrading of knowledge and skill." When teachers describe what an effective staff development program that supports continual upgrading of the profession contains, they say: involvement in all aspects of the program, clear ties to teacher work and needs, evaluation of the effects of the program on knowledge and skill, and integration of knowledge and pedagogy.

Teachers who report large classroom effects from properly designed staff development state that fifty or more hours need to be devoted to follow-up and practice during a one-year improvement effort. The challenge for anyone designing staff development is to change the existing patterns of staff development (teachers making choices based on individual interests rather than on school needs, little or no accountability for using new skills, teachers working in isolation, consequences never tested in the classroom). The trick is to plan staff development programs that have clear goals of improved pupil performance that are linked to school or district goals.

Additional References

Joyce, B. (Ed.). (1990). *Changing school culture through staff development* (ASCD Yearbook). Alexandria, VA: Association for Supervision and Curriculum Development.

Ogle, D., Pink, W., & Jones, B. (Eds.). (1990). *Restructuring to promote learning in America's schools: Selected readings* (Vol. 2). Elmhurst, IL: The North Central Regional Educational Laboratory.

Staff Development Leadership

Leithwood, K. (1990). The principal's role in teacher development. In B. Joyce (Ed.), *Changing school culture through staff development* (ASCD Yearbook) (p. 71- 90). Alexandria, VA: Association for Supervision and Curriculum Development.

Leithwood identifies four main guidelines from the literature on adult learners that stress "the importance of understanding teachers' own view of their world." These guidelines, Leithwood believes, are critical to foster teacher development. Guideline one is to treat the teacher as a whole person. This means the principal should pay attention to the professional expertise level of the teacher (from developing survival skills to participating in a broad range of educational decisions at all levels), the teacher's stage of psychological development (from self-protection to autonomous/interdependent), and the teacher's career cycle development (from launching the career to preparing for retirement) as staff development plans are made. These three interdependent perspectives must be diagnosed and carefully analyzed if teachers are to grow and master "an expanded, flexible repertoire of instruction techniques" and experience fulfillment as a teacher.

Guideline two is to "establish a school culture that is based on norms of technical collaboration and professional inquiry." Leithwood speculates that the reason teachers stabilize or stagnate in the middle of their careers is that the school culture is typically one of autonomy and isolation from other teachers. The culture of the school in fact stifles teachers' professional growth. Principals need to carefully analyze how the school culture treats the teacher and what "beliefs, values and norms" are shared between teachers that limit their professional career, and psychological growth.

The third guideline is for the principal to "carefully diagnose the starting points for teacher development." Teachers do not just want to be developed, they want active participation in setting and achieving professional goals. Teachers want to know how well they are currently doing so they can use that information to plan new practices they want to know about and use. Teacher evaluation "rarely results in useful diagnostic information and generally appears to have little influence on teacher development." Yet this is the activity many principals spend much time on and use to try to stimulate growth in teachers. Teacher evaluation that is based on multiple forms of data that the principal and teacher both agree is relevant and where the principal spends considerable time in the classroom seems to create diagnostic information that focuses teachers into areas of improvement if it is coupled with "school goal setting, shared values, and collaboration."

The fourth guideline asks the principal to "recast routine administrative activities into powerful teacher development strategies." One important finding that contrasts "highly effective" principals and "typical" principals is the "amount of consistency that principals are able to bring to their activities and decisions." This simply means that highly effective principals apply a consistent set of criteria to decisions about budget allocations, discipline, planning and time lines, staff development, staffing, and instruction. Typically, principals operate as if these are isolated decisions or have little relation to each other. For highly effective principals, the goals of the school and the goals of the staff are correlated and complementary. All the rest of the school functions are aligned to support the accomplishment of these goals. The new definition of teaching found in these guidelines "views it as a non-routine activity drawing on a reliable body of technical knowledge and conducted in collaboration with other professional colleagues."

McEvoy, B. (1987). Everyday acts: How principals influence development of their staffs. *Educational Leadership*, 44(5), 73-77.

McEvoy analyzed hundreds of hours of conversations with successful principals to identify six ways these principals used staff development as part of their practice of educational leadership. The six practices these leaders used were: (1) informing teachers of educational opportunities ("I didn't even know about it, but he put the brochure in my box. He's always doing that...sticking things in my mail box."), (2) disseminating professional and curriculum material (Principals followed up on conversations about interests by handing out new curriculum materials, finding books, and setting up displays of professional materials.), (3) focusing teachers on specific topics ("She asked teachers about individual students' progress and often asked students to read to her as part of her classroom visits. In interviews, every teacher in this school mentioned the emphasis on reading."), (4) seeking out teacher opinions ("She'll ask the staff what we feel that we need—to make us better teachers or better able to cope with particular problems."), (5) encourage and reward experimentation ("Anything basically that you can show her that is something you need or something you want to do that is a method or a tool to that end, she will do anything she can to go along with you and help you achieve that."), and (6) recognize achievements of individual teachers ("I was very into Project Write in the classroom, and the kids had done a lot of really fine work...so the principal asked me to put together a workshop so that I could show the other teachers what we were doing.").

Sarabun, C. (1987). A principal's role in supporting teachers as staff developers. *The Journal of Staff Development,* 8(1), 49-51.

> This principal focused her attention on the fostering of collegiality and experimentation to help teachers take increased responsibility for staff development activities. Collegiality was developed by first having teachers speak about staff development activities at each faculty meeting. The norm established was that teachers should regularly share their growth experiences as a part of being a responsible professional. The second strategy to develop collegiality was to form a staff-development committee with the responsibility to plan all staff-development activities. One outcome of the committee was to agree that all faculty meetings would be a time for staff- development activities.
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> The creation of the norm of experimentation came about by forming support groups that began by discussing and reading about areas of interest, meeting with experts, and sharing approaches to teaching and lesson design. After the group became more comfortable and confident with each other they began to regularly establish peer coaching partnerships. This focus on developing the cultural norms of collegiality and experimentation has resulted in increased teacher leadership, a reduction in isolation between teachers, the willingness to take risks and try new approaches to teaching, and a high morale.

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The Regional Laboratory for Educational Improvement of the Northeast and Islands. (1988). *The school improvement leader: Four perspectives on change in schools.* (Series of training modules). Andover, MA: Author.

Saxl, E.; Lieberman, A.; and Miles, M. (1990). *Assisting change in education (ACE).* Alexandria, VA: The Association for Supervision and Curriculum Development. (This is a training program of six skill areas that include trust/rapport building, organizational diagnosis, dealing with the process, resource utilization, managing the work, and school skill and confidence in people to continue. These skill areas were found to be the skills used by highly successful change leaders or facilitators.)

Reflecting on Practice

Lambert, L. (1989). The end of an era of staff development. *Educational Leadership,* 7(1), 78-81.

> Lambert believes that staff development should not place teachers in a passive role as learners but in an active role of directing their own learning. To do that she suggests staff development activities should provide opportunities for teachers to talk (reflect) about their thinking and teaching as opposed to programs, discipline approaches, materials or the other stuff of typical staff development. Teachers should use staff development to initiate change (or restructuring) in their schools and not react to changes made by others. By using reflection, teachers could contribute new and useful ideas and products to their profession, a role seldom played by teachers in staff development today. The enculturation of new teachers, improving the profession, and leadership are the outcomes of staff development when thinking about or reflecting upon teaching are primary goals. This approach means that the principal is more of a "systems facilitator" who assists teachers as they reflect about their practice of teaching, share craft knowledge with each other, determine options, work together, keep up to date in their profession, and change the system so this kind of staff development can happen.

Marzano, R. (1987). Staff development for teaching thinking: A matter of restructuring. *The Journal of Staff Development,* 8(3), 6-10.

> Marzano does not believe that "standard staff development practices" transfer well to the implementation of teaching strategy thinking in the classroom. This is because teacher perceptions about curriculum, instruction, and assessment all change as a result of this type of instruction. The shift that needs to occur in staff development practices moves from traditional training of teachers to approaches that are "experiential and reflective." Experiential means that teachers "should experience those (cognitive and metacognitive) strategies first-hand as learners" much as the National Writing Project spends about half of the training time teaching teachers to be better writers themselves as a way to learn to teach writing skills. Using this analogy, Marzano states that teachers of strategies should first "better understand their own metacognitive and cognitive patterns relative to their content area and life in general." This kind of inquiry, experiential and reflective, would naturally lead participants to question their old practices of instruction, their paradigms, so that new approaches to instruction could emerge.

Pressley, M., Burkell, J., Cariglia-Bull, T., Lysynchuk, L., McGoldrick, J., Schneider, B., Snyder, B., Symons, S., & Woloshyn, V. (1990). *Cognitive strategy instruction that really improves children's academic performances.* Cambridge, MA: Brookline Books.

> In the first chapter of this book, Pressley et al. talk about how to become a good strategy user. They identify a nine-part general model of how to teach strategies. The model suggests starting modestly by only teaching "a few strategies at a time" but teaching those strategies frequently and applying them broadly within the curriculum. They state that modeling new strategies is very important and that modeling the strategy again and again in new contexts or applications helps understanding. Explicit explanations of when to

apply the strategy (the context) is critical to proper use. Having students practice the strategy and then practice some more is essential. As students practice applying the strategy, have them "monitor" or think about what is happening as they apply it (metacognition).

The application of the strategy needs to be encouraged or rewarded, especially during its early use. Students become more motivated to use the strategy if the teacher explains that by using the strategy, they are becoming competent learners or that they are doing what successful learners do. Pressley et al. end this model of strategy use by emphasizing that the teacher should encourage active reflection about the use of the strategy to reduce anxiety and thoughtless applications of the strategy (where the application might not produce the anticipated result).

Simmons, J., & Schuette, M. (1988). Strengthening teachers' reflective decision making. *The Journal of Staff Development*, 9(3), 18-27.

Simmons and Schuette state that there have been paradigm shifts in views of effective teaching (the personality paradigm during the 1960s, the skilled performer of the 1970s, etc.) and the paradigm has now shifted to the "teacher as reflective practitioner." The reflective practitioner is one who identifies and analyzes problems and situations in her or his classroom, approaches these problems and situations as a problem-solver (gathers information, interprets information, evaluates), makes judgments about the information, and takes action based on judgments and decisions. The authors say reflective teachers are metacognitive (thinks about how they think) and analytical (analyzes what they do and why they do it) as well as being "instructionally skillful." This view of teaching practice integrates educational theory into instruction and makes both relevant to daily work in classrooms. This paradigm of staff development dignifies the experiences of teachers and moves from the position of staff development as remedial in nature.

Simmons and Schuette believe that to make teaching reflective there needs to be a "delicate balance between support and risk-taking, and collegial interaction." A climate should be established by beginning with "safe" topics in a seminar-like setting. Talk should focus on increasing understanding of the strengths and weaknesses of different approaches to instruction in different contexts. Feelings and the related difficulties of changing should be acknowledged and supported. Collegial interaction is a necessary condition so that participants can move to riskier topics and more self-disclosure about practice. Developing trust and making sure discussions never focus on people but only on practice is important to the establishment of collegial interaction.

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Clark, C., & Peterson, P. (1986). Teachers' thought processes. In M. Wittrock (Ed.), *Handbook of research on teaching* (p. 235-296). New York: MacMillan and Company.

Peer Coaching

Brandt, R. (1987). On teachers coaching teachers: A conversation with Bruce Joyce. *Educational Leadership, 44(5), 12-17.*

> In his interview with Bruce Joyce, Ron Brandt finds that there is "strong evidence" that if teachers study the rationale of a teaching strategy, and take time for lots of practice and receiving feedback on that practice, almost anyone can learn to apply anything well. (Joyce recommends that for a strategy to be successfully integrated into a teacher's list of strategies used often in the classroom, it will take the teacher about thirty trials to get proficient at the strategy.) But Joyce says there is a second stage of learning a new strategy, where the strategy is consolidated or built into the teacher's repertoire, where "companionship" and support from peers is very important. Joyce explains that to make this "companionship" or coaching with peers effective, it must start with training and then move to immediate and frequent practice. One of the most important benefits of coaching, according to Joyce, comes from watching another teacher work, not from listening to another about your own teaching.

Little, J. (Winter, 1984-85). Coaching: A powerful strategy for improving staff development and inservice education. Adapted from School Success and Staff Development, Center for Action Research, 1981. In C. Hutchins (Ed.), *What's noteworthy on beginning the school year, time management, discipline, expectations, motivation, instruction, and coaching* (p. 40-44). Aurora, CO: Mid- continent Regional Educational Laboratory.

> This article makes the analogy that classroom coaching is much like what good athletic coaches do. That is, they allow students to set their own goals, assist in skill development by using information gained through observation of the application of the skill, and provide encouragement, reassurance, and support as the student becomes better at the skill. Hutchins has specific suggestions for setting up the coaching process.
>
> First is that the principal should endorse and encourage the coaching process. Second is that groups who are going to coach one another are naturally formed of people who like and respect each other. Third is that people who don't want to participate shouldn't be forced to participate but should be encouraged to observe the process and talk with those who are participating. Fourth is that there should be specific expectations about the number of observations and follow-up coaching sessions. This should be established at the beginning so the participants know what they are committing to. And fifth is that specific times should be set aside for the observation and follow-up sessions. The logistics of who, when, and for how long can seriously inhibit the coaching process if they aren't managed appropriately.

Phillips, M., & Glickman, C. (Spring, 1991). Peer coaching: Developmental approach to enhancing teacher thinking. *The Journal of Staff Development,* 12(2), 20- 25.

> Phillips defines peer coaching as "a process in which classroom teachers observe one another teach, give feedback concerning the observation, and together develop an instructional improvement plan." Phillips and Glickman developed a coaching program to

train and establish the coaching process. The training develops skills for teachers to use in the pre-observation conference, the classroom observation, and the post-observation conference. (This model of coaching uses the clinical supervision cycle. Most models of coaching are not this formal nor do they follow this three-step approach.) The training consists of practicing active listening, observating techniques, giving non-evaluative feedback based on the interpretation of the observation data, and setting goals and critiquing plans in the post-observation conference.

The training is followed by four cycles of peer coaching, two as a coach and two as the teacher being observed. Eighteen of the twenty-two teachers said that peer coaching changed their teaching. The teachers obtained more specifics about their teaching, gained new information and ideas, and developed a new awareness about how they teach and the processes they use. The teachers concluded that the coaching program helped them come together as colleagues, assume different roles, reflect about their teaching, and develop their long-term professional growth.

Servatius, J., & Young, S. (1985). Implementing the coaching of teaching. *Educational Leadership*, 42(7), 50-53.

Servatius and Young found that teachers correctly and consistently apply the process of coaching when they have some training and are coached themselves. Several conditions were found to be very important to the successful implementation of coaching in the classroom. One was accountability; a teacher who is going to be coached must sincerely want to implement the skill. The second is that support and companionship needs to be developed, if it hasn't before the coaching process begins, between the coach and the one being coached. The third condition is that the coaching itself must provide specific feedback to the one being coached so he or she clearly understands if the skill is being implemented correctly or not.

Wolfe, P., & Robbins, P. (1990). *Opening doors: An introduction to peer coaching.* Videotape. Alexandria, VA: Association of Supervision and Curriculum Development.

This two-tape set demonstrates a step-by-step process for learning peer coaching. This clinical approach to peer coaching shows teachers holding a pre-conference (the teacher begins setting improvement goals by asking a peer coach to observe a class and look for specific actions or behaviors), actually doing the classroom observation (the coach records data on the actions and behaviors that the teacher specified), and conducting the post-conference (developing a collegial, trusting relationship by giving feedback on only those actions and behaviors specified by the teacher). The videotapes give examples of the three most common types of peer observation: mirroring (the coach records but does not interpret the data the teacher asks for), collaborative coaching (the teacher and coach work together to find ways to improve teaching), and expert coaching (the coach acts as a mentor, giving specific suggestions to the teacher).

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Ackland, R. (1991). A review of the peer coaching literature. *The Journal of Staff Development*, 12(1), 22-27.

Showers, B. (1985). Teachers coaching teachers. *Educational Leadership*, 42(7), 43-48.

Making a Home for Staff Development

Emmons, G. (1990). Make staff development start with you. *Instructor*, 100(1), 16-18, 22-23.

> Emmons begins by describing one of the greatest professional growth problems that educators face. It is that "teaching is one of the few professions in which day-to-day work is regularly performed in the absence of one's peers." Staff development can become the way out of this isolation if new models or programs are designed and implemented. Emmons suggests three principles that guide the design of these new model staff development programs. The first is shared responsibility (all teachers, administrators, specialists, etc., become active and committed to learning together). The second principle is teacher empowerment (the ability and authority to change practice and improve the learning environment). The third principle is community growth (a "collective wisdom" is established by teachers working together, receiving feedback from each other, and sharing knowledge and practice which creates a "sense of community").
>
> Examples of these new models of staff development include mentoring (a two-year commitment to new teachers with monthly observations), a new teacher orientation, a companion teacher group (four teachers agreeing to observe each other once a month and share their observations), study groups (teachers meeting together to discuss topics of interest), faculty roundtable (any teacher can call an informal meeting to discuss areas of interest), videotaping service (a service that sets up videotaping equipment in the classroom to tape class activities), and off-campus faculty development (off- campus programs to provide intellectual stimulation).

Ogle, D. (1986). Collaboration for school improvement: A case study. In J. Orasanu (Ed.), *Reading comprehension: From research to practice.* Hillsdale, NJ: Earlbaum.

> Ogle identified six major factors that affect the positive or negative impacts of change efforts. The first is "prior experience." Bad experiences with change or staff development in the past are ready excuses for not participating. Second, answering the question, "Who is in charge of the curriculum and the outcomes?" can tell how the school is structured. This becomes important in establishing the levels and degrees of authority that must be considered in any change effort. Trying to confirm the level of teacher control is important and will predict the ease of adopting changes in teaching and curriculum. The third factor to diagnose is the initiative of the principal to support and reward school improvement efforts. The principal's role of "initiator," or one who has "clear directions and goals he or she wants fulfilled and provides clear leadership to see that they are fulfilled," is necessary for change to occur.

The fourth factor is to make sure someone in the organization has the energy and the vision "to make things happen." This may be a teacher leader but it is the person others see as one who moves the obstacles to change out of the way and keeps the purpose of change visible. The fifth factor is the "degree of need felt by participants for the change." Do staff see the effort needed to bring about change as being worth the result? Is the result what staff really want? The "felt" need for change may be a concern for student achievement or a realization that "I'm not current in my own profession." There must be a clearly identified and agreed-upon need for change to happen with any degree of enthusiasm. Finally, the model of change will relate to the success of the change effort. Who makes the decisions to change, how staff development activities are organized, how follow-up and practice occur, and how leadership reduces the barriers to change are all part of the model for change.

Shalaway, L. (September, 1985). Teachers as professionals. *R&D notes.* Aurora, CO: Mid-continent Regional Educational Laboratory.

This compilation of articles about staff development and professional growth begins by stating that there are identifiable features of staff development activities that create "higher" amounts of changed or improved teacher behavior. They are : (1) providing teachers time and opportunities to talk with each other about teaching and schooling, (2) helping teachers to find time to plan curriculum and instruction together, and (3) encouraging adaptation of new teaching strategies to classrooms and schools. The metaphor to build on is "teacher as thinker." Teacher as thinker implies thoughtful observation and analysis of classroom activities, making decisions based on that analysis, and then acting upon those decisions. The issue is that the activities that support the teacher as thinker are radical departures from traditional staff development designs. Having professionals share with each other what they know or what they want to know is an important and significant step in the transformation of staff development.

Additional References

Burden, P. (Ed.). (1987). Teachers as staff developers (entire issue). *The Journal of Staff Development,* 8(1).

Joyce, B. (Ed.). (1990). *Changing school culture through staff development* (ASCD Yearbook). Alexandria, VA: Association for Supervision and Curriculum Development.

2 APPENDIX

Technologies for Staff Development

APPENDIX 2

INTRODUCTION

The seventeen rural school districts in west and west-central Wisconsin where SRP was developed used various technologies to support all phases of their staff development efforts and to connect them to new sources of information. This section elaborates on these technologies and provides options to support and enhance your own staff development efforts as you implement the Strategic Reading Project in your school or district.

This section is divided into four parts. *Part One* provides an overview of the various technologies, the relative benefits and limitations of each, and advice on things you will need to consider as you make decisions about what technologies best fit your needs. *Part Two* discusses how various technologies can be used to support each of the five staff development phases, and provides some "rules of thumb" on how to maximize their effectiveness. *Part Three* outlines some general considerations about the use of technology for staff development and the distinction between technology as a tool *vs.* technology as a goal. In *Part Four*, we discuss some of the other benefits that these technologies can provide beyond the specific applications within this project.

Part 1: About the Technologies

While there are a wide array of technologies available that could be used to support staff development efforts, we recommend that SRP schools focus on four primary technologies: audio- and videotapes, and audio- and computer conferencing. We selected these particular technologies for several reasons: (a) they are relatively easy to use by people with little or no background or experience with technology; (b) they are cost effective in that they can provide significant benefits with a relatively small investment in hardware, software, or installation; (c) many schools already have much of what they will need to get started; and (d) they can be used for other purposes in the school beyond those directly related to this project.

Audio- and Videotape Resources

One of the key benefits of using technologies to support staff development is their capability to provide various information resources in a wide variety of formats that can fit the schedules, time constraints, and other circumstances of project participants. The use of audio- and videotapes has become one of the fastest growing of these information dissemination strategies.

Audiotapes

Audio technology can also provide a significant staff development resource through the use of audiocassette tapes that can be played in school, at home, or in the car for one or more people. It is an inexpensive and effective means of sharing ideas, capturing a presentation only a few people had a chance to attend, and reinforcing learning through the ability to hear the same information more than one time. Audiotapes are also a good means of communicating with parents that is often more effective than written correspondence alone.

Videotapes

While use of VCRs and camcorders for instruction has become common in many schools, they have not typically been used for staff development. In the SRP project, there are a number of ways in which videotapes can support your staff development program. Among the most promising are:

- Videotapes of presentations and/or classroom demonstrations by expert practitioners and researchers — these might be commercially produced or produced under contract for the project. In the latter case, use of student video classes can make the costs of such production minimal, and at the same time provide an important learning opportunity for students.
- Videotaping class sessions of project teachers learning to implement or practicing new instructional strategies, possibly including students discussing their own thoughts about the new strategies and how they were being taught. In addition, the process of making the tapes can also provide an important learning opportunity in and of itself.

Conferencing Technologies

In addition to the use of tape technologies as a vehicle for sharing information, there are two basic conferencing technologies that can assist schools in accessing sources of information, as well as communicating with other colleagues engaged in SRP-related activities, more easily and effectively than is possible through traditional meetings or print-based communications.

Audioconferencing

Audioconferencing is the general term used for a variety of conference calls over regular phone lines. Using existing telephone lines, a number of people can have a discussion about project-related activities, strategies, or problems.

Audio or phone conferences can be set up in two basic ways: an "operator-connected," or a "call-in" approach. The "operator-connected" approach involves calling either your local phone company or long-distance provider, or an audioconferencing service and giving them the names and telephone numbers of the people who are to participate in the conference. The operator then calls each person on the day and time you have scheduled and connects you to a common line so that everyone can hear everyone else. By contrast, the "call-in" approach is a service usually provided by a private company. In this case, you arrange the day and time for the conference with the company and inform all participants of when the conference will be held. The company will provide you with a number that each participant will call at the appointed time. Once they call in, they will be automatically connected to the conference. The advantage of the call-in approach is that conference participants do not have to know in advance where they will be, since they can call in from any phone without operator assistance. This is often a real advantage if you want to include staff from a college or university or an intermediate service agency in the conference who may not know far in advance where they will be on a given day, at a given time. Call-in conferences are also typically less expensive that the operator-connected option.

Audioconferencing can also occur between groups of teachers at several locations. This can allow, for example, project participants at two different schools to talk to each other while only having to make one phone call. To utilize this option however, you will need access to a two-way speaker phone, or an audioconferencing unit.[1] In addition, since audioconferences are likely to tie up a phone line for some time, many schools have invested in a separate line for audioconferencing purposes. Similarly, to the greatest degree possible, the conferencing equipment should be located where participants would be relatively free from distractions, and where they would not disrupt other normal activities.

Benefits and Limitations

Audioconferencing has three key benefits as a support for staff development. First, it enables a number of people to discuss project-related issues without the need for them to be in the same place. For instance, some people have held evening audioconferences from their homes. Second, audioconferences are relatively inexpensive, and typically require little more equipment than most schools or people already have and are readily familiar with. Third, many experts in a particular area whose fees or schedule would not make them readily available to the relatively small number of school staff typically involved in an SRP project, are often willing to take an hour to participate in a discussion via audioconferencing.

There are however, some limitations to the audioconferencing strategy. First, the need to manage the discussion in an audioconference can make the conversation somewhat artificial and limit the natural interactions that occur in face-to-face meetings. Second, an effective audioconference should only involve a limited number of people, probably no more than ten. Too many people on the line creates confusion about who said what to whom. In both of these instances, your effectiveness in using this conferencing technology will improve with practice. It is important, therefore, that all participants be provided with the opportunity to gain experience in organizing and managing an audio meeting, and that participants not be too impatient if the first several meetings seem not to go as smoothly as they imagined. Third, people often want to share printed information that relates directly to the topic(s) under discussion. While you can plan for this eventuality by sending all participants a packet of materials beforehand, it is not always possible to anticipate what materials might be most germane to the conversation. Fourth, extensive use of audioconferencing can result in more long-distance charges than some schools are able to afford. This, however, is not a concern when all participants are in the same calling area. Lastly, one advantage of face-to-face staff development, particularly in a project such as this one, is that people can model and demonstrate how they approached a particular lesson, or taught a specific strategy. Such modeling is limited in an audioconference.

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[1] The term "audioconferencing unit" refers to a variety of devices that contain high-quality microphones and speakers that allow a number of people to hear and speak at the same time more effectively than traditional speaker phones. In addition, the more sophisticated units allow participants to talk and hear each other at the same time, more like a normal conversation. These units connect directly to phone lines and are easy to install and use. However, many units require a particular type of phone line, and therefore you should be sure that any unit you are considering will work with your phone system before making a purchase.

Computer Conferencing

Like audioconferences, computer conferences utilize telephone lines to allow a number of people to communicate about a particular topic or issue from different places. Unlike audioconferencing, however, computer conferencing does not necessarily require that all people participate at the same time. Computer conferencing, therefore, not only helps overcome barriers of distance, but also of time.

There are two basic types of computer conferences. The first involves "real-time" conversations.[2] This conferencing method, however, is typically too unwieldy to be practically useful for the types of staff development strategies under discussion here. The second, and more practical type of computer conference, is the "bulletin board" or "mail box" conference. In these cases, participants are not connected on-line at the same time, but leave messages, comments, or questions to be responded to by other participants at a different time. In the "bulletin board" option (as its name implies), all messages are available to any participant in that conference. With the "mail box" option, each conference participant has a mail box that only he or she can access. This allows participants to leave messages that are available only to the participants to whom they were sent. This option also allows participants to target their messages only to those persons who may be interested in that particular issue, and allows individuals to quickly identify messages meant for them, without having to scan all messages that may have been left on a bulletin board.

In general, a computer conference works like this: First, all participants must decide on a company or agency to provide the conferencing service. There are dozens of such companies that provide this service under a variety of fee structures. In fact, in many states, there are statewide networks designed specifically for educators, or more localized networks operated by intermediate service agencies, media centers, and some larger school districts. We would encourage you to call your district, intermediate service agency, media center in your area, or your State Department of Education to find out what services might be available. In virtually all cases, the conferencing service provides all of the centralized telecommunications and information storage technology necessary. However, to participate in a computer conference, all participants must have access to a personal computer of any type, a modem, a communications software program, and a phone line.

In general, the process works like this. The communications program on your computer is set to dial into the conference. Once the connection is made, you will be prompted to either: (a) enter a message; (b) review or respond to messages left by others; or (c) be connected to an ongoing (real-time) conversation with other participants. From that point, you will usually need only to follow the on-screen prompts. However, some programs do require that you be familiar with some "commands" that may not appear as on-screen prompts.

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[2] In this type of conference, several people are connected together at the same time. Individuals can type in questions or comments that appear on the screens of all conference participants. Other participants can then respond with other questions, comments, or answers. All responses also appear simultaneously on participants' screens.

Benefits and Limitations

Computer conferencing provides several benefits as a support for staff development. First, use of computer conferencing can overcome the barriers of time and distance that often limit the opportunity for conversations between staff in different schools or districts, particularly the opportunity to leave messages for various persons who can then respond to them when they have time, and after they have had time to consider their responses more carefully than might be possible during an audio conference. In this way, computer conferences are an excellent means for conducting ongoing "conversations" that allow participants to pursue important issues at length or exchange resources over time. Second, computer conferences can allow messages to be targeted to specific individuals as well as an entire group. Third, computer conferences can allow multiple responses to a specific inquiry to be downloaded to the inquirer's computer and printed for future reference or for sharing with others. Fourth, computer conferences can provide an easy review of previous messages and responses and can, therefore, provide a record of how issues have changed over time, as well as how participants' knowledge has increased. Such a record can provide important information for planning future staff development activities.

Computer conferences, however, are not without some limitations that must be taken into account when incorporating this technology into your staff development program. First, the relative level of difficulty compared, for example, to audioconferencing requires that significantly more time be devoted to training staff to use the equipment and software. While most current communications and conferencing software is relatively "user friendly" and incorporates logical prompts and on-line help, it can still be intimidating and confusing to the novice. Without adequate training and time to practice, the real (or perceived) difficulty of using the system can limit the number of staff who will take advantage of this option. Second, to effectively participate in a computer conference (especially in "real-time"), the user needs some reasonable level of keyboard skills. While the user does not need to be an accomplished typist, if it takes staff members too long to enter messages using the "hunt and peck" method, they will be less likely to use the system. Again, time for practice is important. A third consideration that must be taken into account involves the need for someone to serve as a "moderator" for the conference. The moderator helps organize the discussion topics, monitors and encourages participation, provides technical assistance to new users, and so forth. In some cases, the service provider can assume these responsibilities. In other cases, a staff person at a participating school will need to serve in this role. The final limitation of this conferencing strategy involves access to the equipment. Our experience is that people's participation on a computer network is directly related to their ease of access to equipment at a time and place when it is convenient for them to use it. Lack of such easy access to equipment will likely severely limit the utility of this strategy as a meaningful staff development support.

Part 2: Utilizing Technology to Support Staff Development

The five phases of evolutionary staff development—building a knowledge base, observing models and examples, reflecting on your practice, changing your practice, and gaining expertise — are at the heart of SRP. In this section, we will explore some of the ways in which technology can support your activities. We will also suggest some "rules of thumb" that will maximize your effectiveness in utilizing each of the technologies we have discussed.

It is important to note however, that not all technologies are equally applicable for all of the staff development phases. Nor are the following examples the only ways that these technologies can be used. In fact, we would hope that you will discover new ways to use any of these technologies and that you will share those new ways with others, as well as with us.

Audiotapes

Audiotapes can provide a valuable resource for groups of teachers or individuals, particularly in the *Building a Knowledge Base, Observing Models and Examples,* and *Reflecting on Your Practice* phases. Listening again to a tape of the study group's discussion, a professor's lecture, or feedback on a videotape or discussion can provide important reinforcement that is usually more powerful than relying solely on one's own notes. We have probably all experienced the phenomenon of looking back at notes we took a few weeks later and not remembering what we meant by a particular comment or shorthand notation or why we wrote down a particular idea.

Videotapes

Similar to their audio cousins, videotapes can provide an important and relatively inexpensive professional development resource. For example:

a) In the *Building a Knowledge Base* phase, videotapes (either commercial or produced specifically for the project) can be used to provide a permanent record of lectures, panel presentations, or other reports on particular topics. Not only can they be used for initial project participants, they provide a resource that can be used to train others who may join the project later and who would not have had the opportunity to attend initial training sessions or workshops.

b) In the "changing practice" or "gaining expertise" phases, videotapes can provide important benefits not available through other technologies, or even with person-to- person support. For example:

- Videotapes can provide opportunities for project teachers to see how the strategies discussed can work in real classrooms that they would be unlikely to be able to visit in person. The tapes can also be played over and over to demonstrate particular approaches, or to highlight things that could well be missed during a classroom visit. Also, tapes produced for the project could also be edited with the teacher adding a more elaborate description of what she is doing and why, than could be provided during a live taping.

- Videotapes can provide the opportunity for individual teachers to review how well they implemented a particular strategy, to get feedback from others who could not be in their classrooms, and to track how their skills change over time. In addition, videotapes can allow teachers to get together to review tapes from their classes as a group. This can allow the opportunity for each teacher to get feedback and suggestions from more teachers than would likely come to his or her room at any given point.

- Videotaping students (i.e., locating the camera at the front rather than the back of the room, or ideally having two cameras) can also allow teachers to examine how students react to new strategies, how they interact with each other, and what individual students are (or are not) doing in far more detail than is possible while conducting a lesson.

c) In these phases, tapes of "exemplary" classroom demonstrations of various strategies can provide an important resource for helping students understand how their roles and responsibilities will change. So often, when we attempt to change classroom practices, we overlook the need to explain to our students what is going to happen and why, what they will need to know to make the process effective, and what they can expect to gain. Watching how other students have learned, and subsequently become proficient with strategic reading strategies, can be a powerful, motivating, and effective learning experience.

Audioconferencing

There are several ways audio technology can support staff development:

a) In the knowledge-building phase, audioconferences can allow people to have a study group on-line where they discuss articles they have read, compare their understanding or interpretation of the information, and learn how different teachers think about how their readings can be applied to their teaching. Research has demonstrated that most people learn better when they have a chance to discuss what they're learning with others who have similar interests. Similarly, in the *Observing Models and Examples, Relfecting on Your Practice,* or *Changing Your Practice* phases of the staff development process, such conferences can provide important opportunities for discussion and sharing of ideas with colleagues and other expert researchers and practitioners.

b) In any of the five phases, audioconferences can allow staff to discuss ideas with expert researchers or practitioners, who may not be available to the school and almost never to individuals, or to participate in a "lecture" or class by phone. In the last two phases, *Changing Your Practice* and *Gaining Expertise,* use of videotapes of individual class sessions can be coupled with audioconferences to provide a powerful feedback strategy. In this case, one or more teachers would videotape their classes, send those tapes to conference participants and then discuss their observations and suggestions over the phone. During the next audioconference, two others distribute their tapes, and so on.

c) Similarly, distributing written self-assessments of your current instructional practices (reflecting on practice) or new instructional plans (changing practice) can provide the opportunity for broad-based feedback from others. Many people would be willing to participate in a one-hour audioconference to react to plans, etc., from several teachers, but would be unlikely to have the time to provide written or individual feedback. In addition, it is often the interaction between different people that provides more useful insights than the comments of one or more people alone.

Computer Conferencing

Similar to audioconferencing, computers can also allow provide a cost-effective way for numbers of people to communicate with each other. In particular, we feel that the "bulletin board" or "mail box" options provide the greatest flexibility and potential utility options as a support for the types of professional development involved in this project. As was discussed earlier, the primary benefit is the opportunity to overcome the problem of having all people available at the same time. The following are some of the ways that computer conferencing can support your project implementation efforts:

a) As a general resource, computer conferences can provide a vehicle for ongoing conversations between and among SRP participants in any number of schools around the state and even across states. Such long-term discussions can support participant involvement across virtually all of the staff development phases. Further, since the computer can store all conversations for later recall, participants can chart their growth by tracking the evolution of their thinking from acquiring basic information on the strategic reading process, to more sophisticated analysis of their instructional interaction patterns with students of different backgrounds and abilities.

b) A Q&A bulletin board could provide an important support, particularly in the *Building a Knowledge Base, Observing Models and Examples,* and *Reflecting on Your Practice* phases. In this case, a conference manager would enter a question (e.g., What are three new ideas about reading that you have learned in the last week?), or pose an issue (e.g., Many teachers believe that low-achieving students must become proficient in basic word recognition and vocabulary skills before they can realistically be expected to master more sophisticated strategies). Participants in the conference would have a deadline to respond or comment. This would allow all participants to see how others responded to the question or what they thought about the issue posed. In addition, an expert practitioner or researcher could be asked to add his or her comments or reactions to those of the participants. This would allow misconceptions or inaccurate information to be corrected or new insights suggested. Other questions could be related to any of the three phases noted above; e.g., "Of the models we've explored, which appeals to you most and why?" "In reflecting on your own practice, what are the areas that you feel will need to be changed to adopt the strategic reading strategy?" etc. This use of computer conferencing could also allow participants to pose questions to each other.

c) In the *Changing Your Practice* phase, computer conferences could allow participants to enter lesson plans or implementation strategies that could provide important examples for others, as well as allowing others to comment on them. Similarly, participants could ask questions about problems they might be having or tell others about a particularly successful strategy. While these could be accomplished by mail or fax, the advantage of computer conferencing is the ability for participants to access the information from any place they have access to a computer, and to respond easily. Few people would have the time or resources to send written responses to all participants. Also, the time delay in written responses could range from an irritation to a major problem. While fax machines can overcome some of these problems, they are not yet available to enough individuals or schools to make this a real option. Further, given the choice, most individuals would more likely invest in a relatively inexpensive computer that could perform many other tasks, as opposed to a fax machine.

d) In the *Changing Your Practice* or *Gaining Expertise* phases, a computer conference can also provide an easy way to accumulate ideas, suggestions, and resources from the participants that can be reviewed at any time.

Rules of Thumb

As we have mentioned several times throughout this section, there are numerous ways in which these technologies can be used to support SRP staff development activities. The following however, are some general guidelines (or reminders about ones we have already mentioned) that we believe can help you get the most out of using these technologies in your staff development program.

Audiotapes

- A critical element in using audiotapes is the quality of the recording. People tend not to listen to tapes that have a great deal of interference, distracting background noise, or that are difficult to hear. Accordingly, audiotapes should be recorded using good-quality equipment, especially microphones. Built-in microphones are seldom sufficient to make recordings that can be duplicated without significant loss of quality. Similarly, care should be taken in duplicating tapes. If only a small number of tapes is usually needed, any of the better-quality "dual deck" machines should be more than adequate and can be purchased for only a few hundred dollars. In general, it is preferable to have tapes duplicated by a professional service or your area or district media center. In addition, many schools have fairly sophisticated media centers that can duplicate tapes for you.
- Many people like to tape meetings or group discussions for future reference. However, tapes of such discussions are generally not useful to those who were not present. The general exception to this "rule," however, would be the more carefully managed discussions that take place during an audioconference, or tapes of a question-and-answer session with only one or two people answering the questions.
- While cost is always an important issue, it is usually a mistake to buy the least expensive tapes available. Tapes that are "three-for-a-dollar" are generally of such poor quality that recordings are difficult to hear, and a significant enough number of the tapes tend to jam (especially in car cassette players) that any cost savings are largely neutralized by the need replace defective tapes.

Videotapes

- Similar to audiotapes, the quality of videotapes will affect the degree to which they are used. While "professional" quality tapes are not necessary (especially for tapes made by, or of, teachers in their classrooms), the tapes should be of sufficient quality that images are clear and reasonably steady, and the sound should be clearly audible. Most camcorders on the market today should be adequate for the purposes discussed here. However, caution should be observed in buying the least expensive models which usually have poorer microphones and less sensitivity to light, making images often too dark to be watched comfortably. If your school does not already own, or have access to, video recording equipment, your local media center would be a good source of advice about what type of equipment to purchase.

- The same cautions about duplicating audiotapes applies to videotapes as well. In general, when tapes (audio or video) are duplicated, the copy is of somewhat lesser quality that the original. Accordingly, it is important to use the original tape in making all copies.
- Again, as is true with all of the technologies we have been discussing, time should be allocated to allow participants to become familiar with the operation of the equipment. While most camcorders are relatively easy and straightforward to use, there are a number of features that require some study and practice to master. Similarly, learning to adjust to varying lighting conditions will require time to make a number of practice tapes.
- Lastly, we would encourage you to consider using students to do most of your taping. Today's students have grown up with video technologies, and many are as comfortable with video cameras as we were with typewriters. In addition, using students provides another opportunity for them to become engaged in the educational process in a meaningful way. In fact, involvement in such projects has frequently been credited with renewing student interest in their own classes, performance, and future career possibilities.

Audioconferencing

- Audioconferences, like any meeting, are most effective when there is an agenda with estimates of the amount of time to be devoted to each topic. In addition, they should be scheduled for a specific amount of time, and that schedule should be adhered to. Unlike face-to-face meetings, audioconferences are more effective if the number of participants is limited to approximately ten. While the technology will allow for an almost unlimited number of participants, if the number rises much above ten, the conversations tend to become unwieldy and difficult to follow.
- To the greatest extent possible, all participants should have copies of any materials that might be discussed or that can make the discussion more effective. Discussing a "model" lesson plan, for example, is far more effective if all participants have a copy than if one person is trying to describe it.
- An audioconference, like any meeting, should have a chairperson who can manage the discussion and monitor the time. The chairperson should also be responsible for encouraging all people to participate in the discussion. It is a useful strategy to rotate this responsibility among the people involved in the staff development effort. This builds ownership and allows all participants to share in the various leadership roles and responsibilities.

- If groups of people are going to participate at different sites, it is important that they have access to a quiet room where they can be free from distractions and noise that could make hearing difficult. This is equally important for individuals who may be at home. Crying babies or televisions in the background do not typically enhance the conference for other participants.

- If a participant has a bad connection, have him or her call back or contact the operator to secure a better one. It can be most distracting if someone is always asking for a comment to be repeated, or if his or her comments cannot be heard by others.

- Finally, consider having one of the participants (assuming he has the appropriate equipment) or the conferencing service tape the discussion for subsequent distribution to all participants. Devices that can make excellent tapes directly from a phone line are available for under $20 (plus the cost of a cassette recorder [$40-$50] if you don't already have one) and are well worth the investment. The additional charge from most services is usually minimal.

Computer Conferencing

There are several basic elements essential for successful use of computer conferencing technologies: easy access to equipment, adequate training in the use of the equipment, communication programs, reasonable keyboard skills, and someone to manage the conference.

- *Ease of Access* — Expected participants in a computer conference must have ready access to the necessary equipment at a location, and at the times that most conveniently fit into their normal work schedule. This often means that there needs to be more than one station available, that equipment needs to be available after normal school hours (and for that matter on weekends if possible). While it would be ideal if all participants had access to a computer at home, this is not usually the case, nor is it within the fiscal resources of most schools (though the declining cost of basic Apple or IBM "XT" machines is making such an option more affordable). Therefore, SRP coordinators should explore a variety of other access options; e.g., agreements with local businesses, agencies, colleges and universities, or public libraries to allow project participants to use their equipment after school hours; "partnerships" between project participants or other teachers who have computers at home (the project can support such arrangements by covering the costs of a modem and additional phone charges for the cooperating partner, usually an expense far less than purchasing new equipment for all participants); and scheduling staff development periods for project participants by having others in the project cover their classes.

- *Adequate Training* — While virtually all computers and communications and conferencing software have been designed for ease of use by novices, there is nonetheless a need for all participants to be trained in their use, and provided with time to practice and become familiar and comfortable with the equipment and programs. Similarly, reasonable keyboard skills are necessary to make participation in a computer conference a positive experience. Again, while an expert typist rating is not necessary, participants must have sufficient keyboard skills so that entering and responding to messages is not so frustrating and time consuming that participants simply avoid the entire process. In addition, there will always be glitches in the process, and, therefore, there needs to be someone whom project participants can call for assistance when either the equipment or program doesn't perform as expected. In many cases, a high school student may well be a good candidate for this responsibility.

- *Conference Management* — Making a computer conference work involves a number of coordinating and management activities. Some of these services, such as file maintenance, software upgrades, assigning passwords, etc., are generally handled by the conference service provider. Other management responsibilities, however, are better handled by project participants, or someone close to the project and knowledgeable about the issues, as well as the people and schools involved. This person would be responsible for identifying conference topics, promoting participation, seeking answers to questions raised that have not been answered by participants, and compiling reports for the participants.

Part 3: Technology as a Tool

While learning about technology is often the goal or content of a staff development program, such is not the case in this project. It is important, therefore, that project leaders clearly understand the role of the technologies and not let learning to use the technology, or the technology itself, override the project's fundamental goals. There are several considerations that you should keep in mind as you proceed to incorporate these technologies into your staff development planning.

- First, allow time for all participants to become familiar with the various technologies you are using *before* you begin to rely on them as vehicles or tools. The technologies we have recommended do not typically require extensive training, but time must be allocated for learning how they work nonetheless. Having staff practice audioconferences, make three successful sign-ons to the computer network or successfully send and retrieve electronic messages; or make a video tape of their own classroom are examples of ways to introduce them to the technology. This is a particularly important consideration if your staff, or other collaborators, includes teachers who tried some of the earlier technology and found it so difficult to use that they came to think of technology (especially computers) as more of a hindrance than a help.
- Second, using technology for staff development does not change the fundamental principles of good staff development. In fact, it tends to make them more important. For example, it is probably more important to have a clear agenda *and expected outcomes* for an audio- or computer conference than for a face-to-face meeting or workshop. In addition, recording technologies (audio or video) can often inhibit people from being critical of something or from admitting their own lack of understanding of a particular concept. Accordingly, there must be clear agreement in the beginning of what use will be made of any audio- or videotapes, and who will have access to them.

- Third, like any tool, as you become more familiar with its capabilities and uses, you will find new ways to incorporate technology into your staff development. You should constantly ask yourself how any of these technologies can be used in another way to advance the staff development or other goals of the project. For example, videotapes might initially be used to provide models of how a teacher experienced in strategic reading conducts a lesson on metacognition. As the project develops and trust between the participants grows, videotapes might be provided to colleagues for feedback and critique; or you may want to consider doing a videotape for parents with suggestions on how they can help reinforce the reading strategies you are teaching in the classroom.
- Lastly, it is important that you keep abreast of improvements in the technology so that you are not limited to what you have today. While there are clearly cost implications to upgrading technologies, your planning should include provisions for that possibility to the greatest extent possible. Keeping an eye on improvements in technology will not only allow you to take advantage of new capabilities, but can also allow the technology to become easier to use than what you started out with.

Part 4: Technology and School Improvement

In this section, we have explored a variety of ways in which three technologies can be used to support your staff development efforts under this project. These technologies can, however, also provide an important educational and professional development resource beyond the scope of the project, and for other school staff. The following is a brief list of some other ways in which you can use these same technologies to support broader school restructuring initiatives. In addition, we have included suggestions for some of the enhancements (hardware and software) you might want to consider as a part of a longer-term school improvement effort.

Audio- and Videotapes

In the previous sections we have outlined how both audio- and videotapes can be used as vehicles for transmitting project-related information, and, in the case of videotapes, how one's own progress in learning new instructional strategies can be reviewed. Both strategies can also be used to support learning by students and other teachers. For example:

- Lectures and classroom presentations can be recorded on audio- and/or videotape to serve as a resource for students who are having trouble grasping a particular concept or who missed that particular class. Similarly, staff development workshops can be recorded for future use by other staff members.
- Audio- and videotapes can also be an effective vehicle for communicating information about the school and the educational program to parents and members of the larger community. Further, tapes can provide a record of

important meetings. This can be particularly important as schools seek to make fundamental changes in their organization and instructional programs.

- Use of tapes can also allow students to extend the range of the "products" they produce to incorporate more innovative strategies for presenting the results of their work beyond printed reports.
- Audio- and videotapes can also be used to assist students in reviewing their own performance on a number of levels; e.g., the nature of their discussions when solving problems, how well they present reports on a research project, or as a part of an overall performance review.

Conferencing Technologies

As noted above, audio and computer conferencing technologies allow school staff to overcome barriers of time and location in communication, and we have described the manner in which these strategies can support implementation of the Strategic Reading Project. Both of these conferencing capabilities, however, can also support similar staff development efforts in many other areas important to the overall improvement of the school's program. In addition, there are other areas in which these technologies can support broader school restructuring initiatives. For example:

- Audioconferences can provide a means of keeping in contact with important school constituents, or even holding meetings that are increasingly difficult to schedule as more and more parents are also employed full-time. This can be particularly valuable in schools that have established school-community planning teams, or who have established partnerships with various community businesses, organizations, and agencies.
- Audioconferencing can also provide a vehicle for teachers to keep in contact with their students' parents without having to make individual phone calls. Groups of parents could, for example, be scheduled to call into an audioconference to receive an update on classroom activities and ask questions about how they can assist their students in completing them.
- Similarly, this conferencing technology could allow groups of principals (or for that matter, other professional staff) within a large district, across smaller districts, or across similar (e.g., urban) districts in other states, to have regular discussions about new legal requirements or other similar common concerns.
- By way of example, audioconferencing technology could allow groups of students across the city, the state, or the country to "meet" to discuss common projects, concerns, or areas of general interest.
- Similarly, computer conferencing can support many of these same types of communications needs, particularly the capability to link students, as well as their teachers, in a common learning experience. However, computer conferencing also has the capability of allowing teachers or students to tap into an incredibly diverse number of databases that can provide a rich resource for either developing new instructional modules, developing new instructional resources, or, in the case of students, completing assignments.

- At a more sophisticated level, the increasing availability of programmable or fully interactive video disc technologies can assist both students and teachers in making instruction "come alive" in a manner that is not possible through the use of lectures and textbooks alone.

- Similarly, increasingly sophisticated instructional software can be used to expand the range of instructional options available to students, and can assist teachers in developing more individualized programs than is usually possible under current classroom arrangements.

- In addition, once the computer hardware is in place, it can also serve as an administrative planning and management resource in areas such as budget development and monitoring, creating both staff and student schedules, or monitoring student progress. The computers can also control auto dial calling equipment to send messages to parents, or to allow parents (or students) to call in and receive a message on students' homework assignments or other important information.

Videoconferencing

Finally, once you have become familiar and comfortable with audioconferencing and computer conferencing approaches, you may want to explore the use of videoconferences (also called teleconferences) to extend and enhance learning experiences for both students and teachers. Similar to audioconferencing, videoconferencing allows many people to take advantage of a presentation or discussion without having to be at the same place. The typical videoconference originates from a studio uplink site that transmits the program via cable, fiber optics, microwave, or satellite to virtually anyplace that has the appropriate reception capability. In addition, most videoconferences also provide the opportunity for those at reception sites to call the studio to ask questions or participate in the discussion. The videoconference can also be taped for future reference or be shown to others who were unable to attend the live broadcast.

Videoconferences have an important advantage over audioconferencing or computer conferencing strategies in that you can see the presenters and they can include live or taped demonstrations of the teaching strategies or issues being discussed, as well as a variety of other visual supports. They can also reach more people simultaneously than audioconferencing or computer conferences. [5]

However, videoconferences have some important drawbacks:

- They require access to more sophisticated production facilities than are available in most schools.

- Because they are relatively expensive compared with other forms of staff development or instruction, they are only cost effective if fairly large numbers of people participate at a number of dispersed downlink sites.

- Even with call-in opportunities, they still tend to be relatively passive unless there is a well-trained facilitator available at each site.

While there are literally hundreds of other possible applications of these technologies beyond SRP-related staff development activities, we hope that this list has at least stirred your imagination about what some of the possibilities might be. As you progress with the project and become more familiar with the technology, we encourage you to add exploration of new technology applications to your staff development and instructional improvement agendas.

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[3] For more information about the potential uses of videoconferences, as well as other conferencing technologies, we recommend that you obtain a copy of *Linking for Learning: A New Course for Education* from the United States Office of Technology Assessment (OTA).

WHAT IS THE NEW DEFINITION OF LEARNING?

IMAGINE meaningful learning experiences you and others have had. **RECALL** information and beliefs you already have about what you think learning is. **DEVELOP** a list of specific beliefs that describe what you think about meaningful learning. Then, **COMPARE** and **DISCUSS** your vision with your group. Finally, **SELECT** 8-12 statements you believe best capture your ideas about what meaningful learning is.

Meaningful learning is...

Why Do We Need a New Definition of Learning?

Activity: What are the future needs of students and how do schools meet those needs?

THINK about the lives today's students will lead five years after they leave high school. What do you envision students doing? What knowledge will they need to be critical, involved citizens; productive workers; and active, supportive members of families and ethnically diverse communities? What skills will they need? Then THINK about the extent to which your school now fulfills these needs. COMPARE your answer with a partner or your group.

Knowledge and skills students will need	Your school's ability to meet those needs

Note. From A Guide to Selecting Basal Reading Programs (Comprehension II) by the Center for the Study of Reading, 1990, University of Illinois at Urbana-Champaign, Adapted by persmission.

THE COMPREHENSION CURRICULUM

Research has consistently demonstrated that students focus on what their teachers present to them. This is true of instruction in general and of comprehension instruction in particular (21). It makes sense, therefore, to be selective and thoughtful in deciding what should comprise the comprehension curriculum. A brief review of how the comprehension curriculum of American schools has evolved might be helpful in this decision-making process.

The Traditional Curriculum

Prior to the 1940s, comprehension instruction in basal reading programs was based on the belief that practice makes perfect and consisted primarily of teachers asking students questions about the selections they read in their basal readers. However, program developers began to realize that having teachers ask questions at the end of a reading selection was not always enough to produce comprehension competence in all students. This realization led to the addition of expanded comprehension instruction strands to many basal programs. In addition to the questions provided in the teachers' manuals, program developers created activities, or tasks (often unrelated to the selections in the student textbooks), and placed them in workbooks. These activities broke down comprehension into skills, such as finding main ideas, determining sequence, identifying cause and effect relationships, drawing conclusions, and predicting outcomes (22). Thus, the skills-based curriculum was born.

Driven by a growing body of reading research attempting to determine the "essential" components, or skills, of reading, the skills-based curriculum grew to dominate reading instruction in the 1940s and 1950s (6, 22). In many basal reading programs of this period, comprehension was taught as a set of specific skills, such as those needed to use an expanded vocabulary; to locate information; to select, evaluate, and organize materials; to retain information; and to develop comprehension fluency. In a given basal program, each of these skills might be broken down further into component subskills. For example, under locating information, one program listed nine subskills, including the following: using the dictionary, using tables of content, reading maps, skimming, taking notes, and outlining (22).

The skills emphasis in basal programs was accompanied by an interest in the continuity of comprehension instruction. Instruction to achieve skill development was planned not only within grade levels but across grade levels through what came to be called the spiral curriculum. These instructional plans, which were summarized on scope and sequence charts, emerged as the central organizing focus of reading programs.

Beginning in the 1950s and continuing into the early 1980s, program developers expanded and refined the list of skills deemed important to reading comprehension (7). In spite of their efforts, developers, as one writer noted, were "unable to clarify sufficiently the nature, independence or difficulty level of comprehension abilities in reading" (23). At any time in this period, therefore, the curriculum for teaching comprehension skills in basal programs reflected the current best *guesses*, rather than research-based findings, about what is important to teach in reading.

That developers of basal reading programs had little convincing research-based information upon which to build their comprehension instruction perhaps explains why the small number of skills stressed in reading programs in the 1940s expanded to the large number of skills and workbook activities included in programs in the 1970s and 1980s. The belief seemed to be that more must be better.

The Changing Comprehension Curriculum

The value of the skills-based curriculum began to be questioned in the 1970s. One important study involved observations of comprehension instruction in grades three through six (12). Information from this study indicated that teachers were, in fact, not instructing students in comprehension skills but merely "mentioning" those skills—that is, briefly alluding to a particular skill students were supposed to apply; "practicing," or having students complete workbook exercises featuring the skill; and "assessing," or testing students to see if they used the skill properly. It was suggested that such a curriculum did not help students to learn directly *what* the comprehension skills were, *how* they should go about applying them, or *why* or *when* they should use them.

During this same period, a number of cognitive psychologists and linguists were studying different aspects of the process of comprehension. The research of these groups has converged with that of reading instruction researchers to provide us with a view of reading variously called an interactive, a schema-theoretic, a constructive, a cognitive, or a strategic model of reading. This view focuses on reading not as the application of a set of skills but as a process of constructing meaning.

According to an interactive view of reading (1), when we read a book, we are not passively applying a set of discrete skills. Rather, we are actively constructing meaning by connecting our existing knowledge to the knowledge we encounter in the book. Furthermore, while we read, we constantly evaluate what we are reading by comparing it to relevant knowledge we already possess. We accommodate new information by confirming it against this knowledge or by revising what we know. As we do this, we gradually construct the meaning of what we are reading.

The interactive view of reading suggests that comprehension instruction must be a much more complex process of teacher, text, and student interactions than is suggested by the traditional skills instruction in which the teacher's role is essentially one of focusing student attention on the skills to be worked on that day. In the interactive view, the teacher's role is to help students construct an understanding of what they read by sharing with them information about how comprehension works and by helping them relate what they read to what they already know.

The interactive view of reading has increased our understanding of the comprehension process, and many of the ideas it has produced are evident in comprehension curricula that are beginning to appear in some basal programs. Among the most important of these ideas are

- a focus on developing comprehension strategies rather than isolated reading skills,
- the use of explicit, or direct, instruction, and
- instruction intended to develop metacognitive awareness.

We will look at each of these ideas in the following discussion.

Skills and strategies. In the traditional reading curriculum, comprehension is most typically taught as a set of isolated skills appearing in activities that students engage in with small pieces of text, frequently on workbook pages. For example, finding the main idea of a paragraph is sometimes taught through the repeated practice of reading short paragraphs and choosing from four possible main idea statements.

More and more, however, comprehension is being taught as the development and use of reading strategies. Strategies differ from skills in that skills are often conceived of as automatic procedures that do not require thought, interpretation, or choice, while strategies are often seen as conscious plans under the control of the reader, who must make decisions about which strategies to use and when to use them (10).

Skills instruction differs from strategy instruction in several ways. For example, skills instruction stresses repeated practice in applying skills until they become habitual responses to particular tasks. Strategy instruction stresses the reasoning processes that readers go through as they interact with and comprehend text. In addition, strategy instruction emphasizes the adaptable nature of the comprehension process: how the strategies readers use change when they read different kinds of text or when they read for different purposes (10).

The following examples illustrate the differences between a more traditional skills-based instructional approach and an approach stressing strategy use and development.

Example 1

(Finding the Main Idea)

Objective: Identify the main idea and details of a picture.

Call attention to the picture of people in a restaurant. Have the students study the picture. Use the following questions to aid discussion:

- What is happening here?
- Who might the people be?
- Why did they decide to eat in the restaurant?
- Where did they get all the food?

This is the entire activity on finding the main idea and details of a picture. The second activity in the same teacher's manual proceeds as follows:

Objective: Identify the main idea and details of a poem.

Have pupils listen as you read the Mother Goose rhyme, "Mary, Mary, Quite Contrary." Elicit the main idea of the poem by asking students what it is about (Mary who did not want to do as she was told).

These two activities are examples of activities that merely "mention" rather than teach comprehension. There seems to be nothing in the instruction in these lessons that would help students understand *what* they are supposed to do with the skill, *how* and *when* to use it, or *why* it is important. In all probability, students who already understand the concept of main idea will answer the questions correctly. On the other hand, students who have no concept of main idea are not likely to develop one through the instruction presented in the teacher's manual.

Compare the activities in Example 1 to the much more extensive activity in Example 2. Note how the activity in Example 2 stresses strategies rather than skills to help students identify main ideas.

Example 2

Objective: Identifying main ideas and supporting details.

Say: I am going to read you a passage about people's last names. Then I will ask you to decide what the main idea of the passage is.

Read: A lot of our last names come from the jobs people did a long time ago. For example, the name Wright once meant someone who made or repaired things. The name Sawyer meant someone who cut wood into planks and boards. Taylors made clothes.

Say: Now, I want you to decide which sentence sums up the topic of the passage. (*After students identify the first sentence, tell them that this sentence states the main idea of the passage.*) I'll read the passage again, and I want you to listen and then tell me how the other sentences are different from the first. (*Reread the passage.*)

> *Say*: Can you tell me how the other sentences in the passage differ from the first one? (*After students discover that the sentences each supply some information about the topic of the first sentence, explain these sentences contain supporting details.*)
>
> *Say*: We are going to learn to recognize main ideas and supporting details. Being able to recognize main ideas and supporting details helps you to understand a passage and to determine its most important ideas. One way to recognize a main idea is to ask yourself what the topic of the passage is, then look for a sentence that sums up what the passage says about the topic. After you find the sentence with the main idea, look at the rest of the sentences in the passage to see which ones supply supporting detail. You can do this with any kind of selection you are reading. (*Model the strategy by reading a passage aloud and telling students how you go about finding its main idea and supporting details.*)
>
> *Say*: Now I want you to explain to me how to find a main idea and supporting details. Then I want you to read a passage to me and tell me how you discover its main idea and supporting details. (*Review the strategy used and then have students read other passages and find main ideas and supporting details on their own.*)

Notice that in Example 2, the teacher explains what the students are going to learn (how to find main ideas and supporting details when they read) and why they need to learn it (it will help them to understand the selections read and to determine what is important in each one). Then the teacher leads the students through the activity, modeling and explaining what she is doing as she proceeds, and suggesting that the strategy being learned is one that can be applied to different kinds of reading selections. She reinforces the use of the strategy by allowing students to apply it to their own reading.

Strategy instruction, then, focuses on ways to help students understand what they read. Some of the traditional comprehension skills, such as cause and effect relationships and drawing inferences, can be conceived of and taught as strategies if they are taught in this manner.

It has been proposed that most of what are frequently defined as skills, even word recognition skills, should be taught as strategies (8). For example, the use of phonics is only one of several ways in which words are identified, and a strategic repertoire of word identification procedures includes the use of structural and contextual cues as well as phonics. Studies show that when teachers explain carefully how to use skills, students begin to see reading as a strategic process and to use skills strategically rather than automatically (9, 11, 14, 17).

This is not to say, however, that there should be no *skills* in reading programs. The development of automatic responses with some of the most common conventions of written language, such as recognition of letters, high utility words, and punctuation marks, is essential if readers are to read fluently. And, for some students, a certain amount of such skill instruction is necessary to the achievement of automatic responses (15).

What research findings suggest is that successful comprehension instruction includes a mixture of activities to develop automatic word identification skills and activities to develop strategies that can be consciously applied during reading.

Explicit/direct instruction. Explicit, or direct, instruction differs from traditional instruction in at least three ways. First, in explicit instruction, teachers do not merely *mention* what a particular strategy is, they *model* its use in a clear, step-by-step fashion. The examples they use to illustrate the strategy are carefully selected to give students a full picture of what the strategy is and how and when to use it. Teachers begin instruction with relatively simple applications, and as students show their understanding of what is being modeled, they provide increasingly complex examples and applications.

Second, in explicit instructioh, students do not simply *practice* using the strategy, teachers provide them with *guided practice* that allows them gradually to release responsibility for completing an activity to students. During guided practice, the teacher checks how well students are doing and provides immediate feedback when they make mistakes, perhaps by reminding them of the steps of the strategy or by sharing some relevant information so that students can proceed on their own. Providing adequate feedback and guided practice is a key principle in explicit instruction. Students are not asked to work independently until they have shown that they understand the strategy and how and when to use it.

Third, teachers using explicit instruction do not merely *assess* whether students can use a strategy, they ask students to *apply* their strategies to new and varied reading selections (18).

Therefore, rather than only providing students with repeated practice, teachers first share with students information they can use to construct understandings about how reading "works" and *then* provide them with practice.

Looking across a range of research traditions, including the direct instruction research of the early to middle 1970s, the teacher effectiveness research of the late 1970s, and the explicit instruction research of the middle 1980s, a consistent set of patterns emerges when direct, explicit approaches to skill and strategy instruction are compared to forms of instruction that rely primarily on exposure and repeated practice. Since 1979, for example, at least 60 studies have compared explicit approaches to teaching comprehension with the more traditional approaches. These studies have shown that while explicit instruction is effective in teaching students of all ages and ability levels, it is especially effective with young students and poor readers (4, 13, 19, 20, 21).

Metacognitive awareness. Helping students to become aware of how they comprehend is a major part of the changing comprehension curriculum. Cognition can refer to the various functions of the mind, such as remembering, focusing attention, and processing information. Metacognition refers to our awareness of our cognition—it is thinking about thinking. When the term metacognitive awareness is applied to reading, it means that readers are aware of what they do when they read, what to do when they encounter difficulties, and how to select strategies to accomplish their purposes for reading (2, 3, 5). For example, readers who can describe the steps they go through in focusing on the main idea of a selection can be thought of as "aware" readers, whereas a reader who simply says, "I just do it," is probably unaware of his reasoning process (10).

It must be pointed out, however, that many expert readers do not consciously exercise their metacognitive awareness as they read. For example, when they are reading something familiar or easy, good readers seem to have no conscious awareness of the strategies they are applying (2, 3). Their ability to construct meaning is so rapid they seem to proceed on "automatic pilot"—until some triggering event alerts them to a comprehension failure (5).

It is generally when they encounter unfamiliar text or text that is more difficult than usual that expert readers seem to use strategic behaviors. It has been suggested that when they read unfamiliar and difficult text, expert readers use strategies throughout the reading process (2, 3, 5). Before reading, for example, they think about what they already know about the topic of a selection, the type of selection it is, the author's purpose for writing the selection, or their own purposes for reading it.

In addition, during and after reading, they employ repair strategies. These "fix-up" strategies are used by readers whenever they have problems determining the meaning of what they are reading. The need to apply a repair strategy can be signalled by an encounter with an unknown word, by a prediction that is incorrect, or by something in the passage that does not ring true. For example, when a reader has problems understanding a passage because of an unknown word, she applies strategies to figure out what a word means (2). These strategies can include using context, knowledge of sound-symbol relationships, or the structure of the passage.

While research has given us a clear, well-documented picture of what expert readers do when they read—that is, what strategic behaviors they exhibit—it unfortunately has not provided us with a clear explanation of how they got to be such good readers. For example, while metacognitive awareness instruction has been shown to be effective with low- and middle-ability students, its effectiveness with students who are successful readers has not been demonstrated. The conjecture is that such students have already developed their own effective strategies for constructing meaning, and that new ideas for comprehending text do not add to their success (18).

SECTION 2

What Does Research Say About Reading?

In 1985, David Pearson referred to "the comprehension revolution." In essence he was talking about the movement from traditional views of reading based on behaviorism to visions of reading and readers based on cognitive psychology.

What follows in this section are major findings from cognitive psychology regarding:

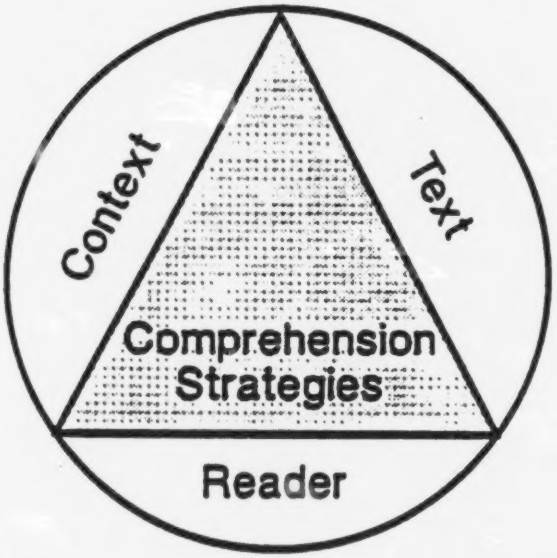
- New and old definitions of the reading process
- Important findings about reading and learning from cognitive science
- Characteristics of poor and successful readers
- Milestones in reading research
- Characteristics of successful teaching/learning environments
- Roles of schools and communities

These findings were developed by NCREL in collaboration with our Content Partner, the Center for the Study of Reading, University of Illinois, Urbana-Champaign, and the participants in Program 1, "Children as Strategic Readers."

The traditional view of the learner as an "empty" vessel to be filled with knowledge from external sources is exemplified by this statue at the University of Leuven (Belgium).

Old and New Definitions of Reading

	Traditional Views	**New Definition of Reading**
Research Base	Behavorism	Cognitive sciences
Goals of Reading	Mastery of isolated facts and skills	Constructing meaning and self-regulated learning
Reading as Process	Mechanically decoding words; memorizing by rote	An interaction among the reader, the text, and the context
Learner Role/Metaphor	Passive; vessel receiving knowledge from external sources	Active; strategic reader, good strategy user, cognitive apprentice



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Comprehension results from an interaction among the reader, the strategies the reader employs, the material being read, and the context in which reading takes place.

Important Findings from Cognitive Sciences

Most of the knowledge base on this topic comes from studies of good and poor readers. However, some of it is derived from research on expert teachers and from training studies.

1. Meaning is not in the words on the page. The reader **constructs meaning** by making inferences and interpretations.
2. Reading researchers believe that information is stored in long-term memory in organized "knowledge structures." The essence of learning is linking new information to **prior knowledge** about the topic, the text structure or genre, and strategies for learning.
3. How well a reader constructs meaning depends in part on **metacognition**, the reader's ability to think about and control the learning process (i.e., to plan, monitor comprehension, and revise the use of strategies and comprehension); and attribution, beliefs about the relationship among performance, effort, and responsibility.
4. **Reading and writing are integrally related.** That is, reading and writing have many characteristics in common. Also, readers increase their comprehension by writing, and reading about the topic improves writing performance.
5. **Collaborative learning** is a powerful approach for teaching and learning. The goal of collaborative learning is to establish a community of learners in which students are able to generate questions and discuss ideas freely with the teacher and each other. Students often engage in teaching roles to help other students learn and to take responsibility for learning. This approach involves new roles for teachers.

Characteristics of Poor/Successful Readers

Characteristics of Poor Readers	Characteristics of Successful Readers
Think understanding occurs from "getting the words right," re-reading	Understand that they must take responsibility for constructing meaning using their prior knowledge
Use strategies such as rote memorization, rehearsal, simple categorization	Develop a repertoire of reading strategies, organizational patterns, and genre
Are poor strategy users: ▪ they do not think strategically about how to read something or solve a problem ▪ they do not have an accurate sense of when they have good comprehension or readiness for assessment	Are good strategy users: ▪ they think strategically, plan, monitor their comprehension, and revise their strategies ▪ they persevere in the face of contradiction, inadequate information, and stress ▪ they have strategies for what to do when they do not know what to do
Have relatively low self-esteem	Have self-confidence that they are effective learners; see themselves as agents, able to actualize their potential
See success and failure as the result of luck or teacher bias	See success as the result of hard work and efficient thinking

Important Trends in Reading Instruction

1. **Linking new learnings to the prior knowledge and experiences** of students (In contexts where there are students from diverse backgrounds this means valuing diversity and building on the strengths of students)
2. Movement from traditional skills instruction to **cognitive strategy** instruction, **whole language** approaches, and **teaching strategies within the content areas**
3. More emphasis on **integrating reading, writing, and critical thinking** with content instruction, wherever possible
4. More organization of reading instruction in phases with iterative cycles of strategies:

   Preparing for reading—activates prior knowledge by brainstorming or summarizing previous learnings, surveys headings and graphics, predicts topics and organizational patterns, sets goals/purpose for reading, chooses appropriate strategies

   Reading to learn—selects important information, monitors comprehension, modifies predictions, compares new ideas with prior knowledge, withholds judgement, questions self about the meaning, connects and organizes ideas, summarizes text segments

   Reflecting on the information—reviews/summarizes the main ideas from the text as a whole, considers/verifies how these ideas are related, changes prior knowledge according to new learnings, assesses achievement or purpose for learning, identifies gaps in learning, generates questions and next steps

Milestones in Reading Research

1. Evidence that meaning is not in the words, but constructed by the reader
2. Documentation that instruction in the vast majority of classrooms is text driven and that most teachers do not provide comprehension instruction
3. Documentation that textbooks were very poorly written, making information in them difficult to learn; subsequent response of the textbook industry to include real literature, longer selections, more open-ended questions, less fragmented skills, and "more considerate" text
4. Changes in reading research designs from narrowly conceived and well-controlled laboratory experiments with college students to (1) broadly conceived training studies using experimenters and real teachers in real classrooms and (2) studies involving teachers as researchers and colleagues in pre-service and in-service contexts
5. Publication of *A Nation of Readers* reaching out to parents, policymakers, and community members as legitimate audiences for direct dissemination of research information
6. Involvement of state education agencies in textbook selection, promoting "the new definition of reading," and developing statewide assessment programs that are research based; especially important are programs in Michigan, Wisconsin, and Illinois which have longer passages, more focus on comprehension, more than one right answer, strategy use, and assessment of prior knowledge.
7. Increasing dissatisfaction with standardized methods of assessing reading (Consequently, there has been a movement to develop alternative assessment strategies including miscue analysis, portfolios, and projects in the classroom.)

Issues of Equity and Excellence

1. Although many students at risk come to school lacking in prior knowledge that is relevant to school achievement, teachers and schools do make a substantial difference. That is, providing students at risk with high quality instruction can drastically alter their academic performance.
2. Although pullout programs and tracking may be well intended, reading researchers increasingly argue that such programs may actually create or extend inequities by segregating students at risk in poor quality programs. Indeed, some researchers contend that the learned helplessness that may characterize students at risk is a functional response to the demands of a dysfunctional situation.
3. An increasing amount of research indicates that student access to functional adult role models is vital for the development of self-esteem and metacognitive abilities. This can come from adult tutors or opportunities for students to participate in the world of work through work/study, shadowing, and apprenticeship programs.

The Social Organization of the School

1. Approaches that teach reading as thinking (strategic reading) need time to develop so that teachers can adopt new beliefs, experiment with research-based methods, and refine new practices. This suggests that schools need to provide (a) sustained staff development programs which provide mentoring and coaching, and (b) environments that support experimentation and risk taking.
2. Reading performance is enhanced when schools have semipermeable boundaries. That is, when:
    - Parents and other community members are involved in the life of the school as tutors, local experts, role models, and aides in schools
    - Students and teachers have opportunities for learning out of school
    - Community members take part in the redesign process

> ***"Students see how members of our community use reading and writing, and they read their own writings in a variety of settings to a variety of audiences for a variety of reasons."***
>
> —Larry Gavin

What are Some Approaches to Reform?

New and Old Definitions of Change

If you haven't begun already, you will soon be embarking on a journey along one of many roads that can lead to fundamental educational reform. There are plenty of "maps" to refer to, but they may be outdated and of little use in and of themselves. These maps tend to be isolated images of school improvement highways and byways that are not drawn to scale, do not provide perspectives on the larger educational terrain that they're a part of, and which fail to show the intersections and linkages with other routes in the network.

The old maps seemed to work for short trips to the school improvement shopping mall and to educational convenience stores for easily prepared new practices. But if what you're looking for is help with building a new and more durable foundation for learning, a high quality educational structure to be built on the foundation, and an interior design that can be adapted to the changing needs and conditions of the learners who will inhabit it, then a map with a single destination simply will not work for fundamental systematic change. There are multiple stops to be made, and many of them will have to be revisited time and again. Choices made at one stop can affect both past and future choices in other locations. Road and market conditions will sometimes change, and you'll need to find alternate routes and resources, perhaps even to the point of creating your own.

Some of the old maps can still be useful, especially if they incorporate new knowledge of the terrain. But even then we'll need to read and follow them only after locating them in a much broader context, not simply within larger maps, but rather as components of an educational universe where children are at the center. This kind of perspective is what NCREL's definitions of learning and the learning environment are about. Figure 6.1 contrasts the old maps and the broader perspective that's needed to help us move toward fundamental reform. This figure also contrasts the usual method of effecting school change with some change principles that are far more likely to result in lasting and worthwhile reform efforts.

Figure 6.1

Changing Our Conceptions: Schooling As We Know It, And How It Could Be

	CHANGE	VISION	CURRICULUM	MATERIALS	INSTRUCTION	ASSESSMENT	LEARNING COMMUNITY
As We Know It:							
BASIC SKILLS	An event distribute manuals do 1 or 2 in-services for all focus on content and materials look for early evidence of success	The Assembly Model teacher as information giver student as recipient: regurgitates facts quality education for elite equal access to education opportunity	isolated skills, facts, and concepts hierarchical skills sequencing mastery learning extensive coverage breaks down learning into small steps	basals textbooks worksheets	direct instruction Stallings/Rosenshine seatwork most thinking skills programs	standardized objective tests isolated skills and facts pop quizzes end-of-chapter questions	kids in self-contained classrooms tracking, ability grouping learning K-12
How It Could Be:							
COGNITIVE PHILOSOPHICAL MULTI-CULTURAL	A Process long-term support and on-going training attend to teachers' concerns as well as use of the innovation plan for continuation of funds and staff turnover outcomes evaluation over 3-5 year period, and ongoing after that	New Models teacher as model, mediator, facilitator, coach, resource person student as active learner, self-regulated, strategic, empathetic knowledgeable multiple intelligences cognitive apprentice equality of results for all students	depth and organization of knowledge vs. breadth integrated content and skills holistic performances problem solving decision making reading, writing thinking across content areas thematic, interdisciplinary communication and collaboration skills integrated multi-cultural concerns metacognition	authentic texts, tradebooks, databases, newspapers multi-media high tech use of cultural artifacts/media of the learner expanded learning environments in and out of school	connects new learning to prior knowledge inquiry learning focus on Kid questions and inventions repertoire of learning/teaching strategies, e.g., self questioning, reciprocal teaching, semantic mapping collaborative teamwork and problem solving appreciation of learners' culture and community authentic tasks	portfolios performance-based assessment day-to-day informal assessment assessment of multiple intelligences bilingual assessment or assessment in dominant language	life-long learning Kids Learning mixed age/ ability groups more learning outside schools performing community services Community in Schools as role models as learners more support services for kids and families

SECTION 7

Glossary

Coaching Providing support in studying new skills, polishing old ones, and encouraging change.

Collaborative Groups A temporary grouping structure used primarily for developing attitude outcomes. Students of varying abilities work together to solve a problem or to complete a project.

Comprehension Monitoring Good comprehenders self-evaluate how well they understand while they read. If comprehension is not proceeding well, they have strategies for going back and improving their comprehension.

Constructing Meaning from Text A process in which the reader integrates what is read with his or her prior knowledge.

Cooperative Learning Students working together in small heterogeneous groups to achieve a common goal.

Heterogeneous Groups Groups composed of students who vary in several ways (for example, different reading levels).

Homogeneous Groups Groups composed of students who are alike in one or more ways.

Interactive Phase Sometimes called "guided practice" in this phase, the teacher attempts gradually to move students to a point where they can independently use strategies. It is a major part of a lesson.

Metacognition The process of thinking about and regulating one's own learning. Examples of metacognitive activities include assessing what one already knows about a given topic before reading, assessing the nature of the learning task, planning specific reading/thinking strategies, determining what needs to be learned, assessing what is comprehended or not comprehended during reading, thinking about what is important and unimportant, evaluating the effectiveness of the reading/thinking strategy, revising what is known, and revising the strategy.

Modeling Showing a student how to do a task with the expectation that the student will then emulate the model. In reading, modeling often involves talking about how one thinks through a task.

Predicting Anticipating the outcome of a situation.

Prior Knowledge The sum total of what the individual knows at any given point. Prior knowledge includes knowledge of content as well as knowledge of specific strategies and metacognitive knowledge.

Scaffolding Instruction Providing teacher support to students by modeling the thought processes in a learning episode and gradually shifting the responsibility for formulating questions and thinking aloud to the students.

Strategic Learner A learner who analyzes the reading task, establishes a purpose for reading, and then selects strategies for this purpose.

Strategies Any mental operations that the individual uses, either consciously or unconsciously, to help him- or herself learn. Strategies are goal oriented; that is, the individual initiates them to learn something, to solve a problem, to comprehend something. Strategies include, but are not limited to, what have traditionally been referred to as study skills such as underlining, note taking, and summarizing as well as predicting, reviewing prior knowledge, and generating questions.

Text Any segment of organized information. Text could be a few sentence or an entire section of a chapter. Typically, text refers to a few paragraphs.

> ***"I turn over some teaching responsibilities to my children. This encourages them to become self-directed learners and it frees up my time to work with students who need my help."***
>
> —Dawn Harris Martine

Phases of Teamwork

Typically, teams go through four phases of development: forming, storming, norming, and performing. While the phases may vary in intensity and duration, they do occur in a predictable sequence, and there are identifiable feelings and behaviors connected with each.

When teams are forming, members are dependent on a leader for initial direction, and they are likely to have strong concerns about clarifying the team's task. There will be some confusion, but this is also an important time for the group to achieve something, since team members may be more willing to please each other and the leaders now than they will be during the storming phase. And solid, immediate first achievements can be important building blocks to recall when progress is slowed down from time to time.

Control issues emerge during the storming phase as team members form alliances around particular points of view and actively challenge leaders to further define and clarify tasks and direction. It is helpful to look beyond their behaviors and immediate concerns, because members are likely asking such questions as: Am I going to like what I am doing? Can these leaders handle us and all of our competing demands?

In norming, there is definite movement toward group cohesiveness. Team members develop a shared sense of purpose, and they are better able to communicate with each other about how they can best achieve their goals.

Time, patience, and tolerance for some ambiguity allow a team to move on to performing. What you will see when your team is performing well is far less dependence on formal leadership as members become comfortable taking their own initiatives with group goals in mind. As they do so, the burden of formal leadership and decision making is eased, and you can attend instead to facilitating the team's work and providing overall guidance to the reform effort.

Principles of Teamwork

In addition to knowledge of the four phases, it's helpful to understand and put into practice seven principles of effective teamwork:

- Responsibility for the team must be shared by all members.
- Decisions should always be agreed to by the team as a whole.
- Methods should encourage full participation of team members.
- The team needs to be flexible in order to accommodate differing points of view and styles of members.
- Threats to individual members need to be reduced to a minimum, especially for restructuring team members who have had little experience in working collaboratively with people representing other roles in the system.
- The team's progress needs to be continually evaluated and discussed openly with the entire team.
- Team members need to be conscious of the importance of their roles in the process.

For a team that completes its task and then disbands, the end of the process represents a fifth phase that does not have a catchy label as yet. Teamwork is often an intense experience, and whether the outcome is positive or negative, team members will have gone through some emotional peaks and valleys, they will feel special bonds with some colleagues and may feel that there is unfinished business with others. So we add an eighth principle: Plan for the end of the team's work. Encourage team members to commiserate about, as well as celebrate, their work together, and be conscious of the collective and personal loss that the end of the task represents.

To summarize this section, we have been talking about the predictable developmental growth that individuals and teams go through as they engage with change efforts. As important, we have stressed that the concerns of individuals, i.e., the personal feelings of individuals working alone and as members of teams, are legitimate and must be addressed if people are to be empowered to move on to other tasks and concerns. Awareness of these facts about the change process should enable you to plan for and manage initiation and implementation activities more appropriately, and to devise interventions that are targeted more precisely at the concerns being expressed.

With these issues of individual and team change in mind, we now turn to a framework for thinking about strategies for initiating change in your organization.

WHAT ARE SOME WAYS THAT TEAMS CAN FUNCTION SUCCESSFULLY?

1. What are some ways to ensure that all team members share responsibility?

2. What are some ways to ensure that team members agree on important decisions?

3. What are some ways to ensure that all team members participate?

4. What are some ways to ensure that teams are flexible enough to accommodate different points of view and styles of teamwork?

5. What are some ways to ensure that team members do not feel threatened as they learn to collaborate with each other?

Reflective Journal

By: ____________________

"I didn't really know what I wanted to accomplish when I started.
In the process of writing, I resolved something, got focused, emptied
my head onto the paper. It felt good at that point and I ended up with direction."

—Teacher
(Educational Leadership-
Volume 48, Number 6, March 1991)